DOCUMENT RESUME

ED 096 912 HE 005 939

AUTHOR	Bressler, Marvin; And Others
TITLE	The Report of The Commission on the Future of the College. [Princeton University].
INSTITUTION	Princeton Univ., N.J.
PUB DATE	Apr 73
NOTE	424p.
AVAILABLE FROM	Princeton University Press, Princeton, New Jersey 08540
EDRS PRICE	MF-$0.75 HC-$19.80 PLUS POSTAGE
DESCRIPTORS	Coeducation; Curriculum Evaluation; *Educational Planning; Faculty; *Higher Education; *Institutional Role; Student Evaluation; *Undergraduate Study

ABSTRACT

This document presents the product of more than 2 years of study by the Commission on the Future of the College of Princeton University. It attempts to convey something of the Commission's respect for the strengths of the undergraduate programs and to offer realistic suggestions about how it might be made even stronger. Following the letter of transmittal, acknowledgements and a listing of members of the Commission, this document proceeds to define the background and purposes of the Commission. The student on campus comprises the second section: composition, undergraduate life, and provisions for advising and counseling. The size of the college, coeducation and the composition of the student body are discussed in section three. Succeeding sections explain the structure of academic time; curriculum and pedagogy; and evaluation of students and faculty performance. Appendices are composed of projected enrollment data, analysis of costs and income of 400 additional students; and the survey instruments. Statistical tables accompany the text. (Author/PG)

ED 096912

April 1973

Princeton
University

The Report of the Commission on the Future of the College

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ISBN: 0-691-09361-X
Distributed by Princeton University Press,
Princeton, New Jersey 08540

The Report of The Commission on the Future of the College

Princeton University COMMISSION ON
THE FUTURE OF THE COLLEGE
58 PROSPECT AVENUE - ELM CLUB
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April 10, 1973

President William G. Bowen
One Nassau Hall
Princeton University
Princeton, NJ 08540

Dear President Bowen:

The Commission on the Future of the College has now completed its work and we are prepared to submit our final report. We have tried in this document, which is the product of more than two years of study, to convey something of our respect for the fundamental strengths of the undergraduate program and to offer realistic suggestions about how it might be made even stronger. We have managed to achieve substantial consensus on nearly all issues, and unanimity on some, but given the range of complex issues that came within our purview it is not astonishing that each of us has some reservations about one or another of the Commission's recommendations.

The responsibility for confronting the full panoply of problems that we have considered now passes from us to the community at large and the appropriate decision-making bodies in the University. As the discussion progresses we will all know better which of the Commission's recommendations should be adopted, amended, or discarded. In any event, we are grateful for the opportunity to have served on the Commission and we are confident that in the future, even as now, the College will retain, to borrow your phrase, its "commitment to excellence, pure and unabashed, without qualifications or embarrassment."

Sincerely yours,

Marv Bressler

Marvin Bressler
Chairman

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The Commission on the Future of the College, April 1973

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b. The Alumni Survey: The Reactions of the Classes of 1969, 1964, and 1954 to the Princeton Experience
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d. Surveys on Three Year Degree Programs
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ACKNOWLEDGMENTS

The Commission on the Future of the College could not have conducted its business without the cooperation of a great many people who offered help and guidance. We wish to express our thanks to the Carnegie Corporation, the Ford Foundation, and the Alfred P. Sloan Foundation for their generous financial support. A great many students and members of the faculty and administration shared their information and wisdom with us but we owe a special debt to Halcy Bohen, Timothy Callard, Edward Cox, Bruce Finnie, Linda Morse, Spencer Reynolds, Judith Rowe, Walter Studdiford, and John Wilson for help well beyond the line of duty. Jack Osander and Kenneth Wilson of the Educational Testing Service also assisted us in a variety of ways.

Paula Kurpeck, Janet Katkow, and Toma Hachat who converted illegible scrawl and inscrutable numbers into clean manuscript merit a special vote of thanks. It is quite literally true that without Mrs. Hachat's energy, resourcefulness, and dedication this report could not have appeared at all.

TABLE OF CONTENTS

Letter of Transmittal to the President ii

Members and Staff of the Commission on the Future of the College iv

Special Studies v

Acknowledgments vi

1. The Commission on the Future of the College: Background and Purposes 3

2. The Student on Campus: Composition, Undergraduate Life, Provisions for Advising and Counselling 23

3. The Size of the College, Coeducation and the Composition of the Student Body 73

4. The Structure of Academic Time 129

5. Curriculum and Pedagogy 161

6. Evaluation of Performance: Students and Faculty 215

Appendices

1. Projected Enrollment 249
2. Analysis of Costs and Income of 400 Additional Students 255
3. Survey Instruments 275

References and Notes 289

Tables 299

CHAPTER 1

The Commission on the Future of the College: Background and Purposes

CONTENTS

BACKGROUND

THE ENDS AND MEANS OF A PRINCETON EDUCATION

Social and Individual Goals
Cognitive and Non-cognitive Goals
Teacher-Scholars in a Single Faculty
Breadth and Depth of Learning
Lifetime Learning
The Learning Environment
Diversity in Students and Programs

BACKGROUND

In the late winter of 1970, former President Robert F. Goheen established a Commission on the Future of the College with the general mandate to conduct "a major review of undergraduate education at Princeton" and to develop recommendations about an imposing bill of particulars which suggests the range of the Commission's tasks. In the language of the President's charge:

> These include, but are not limited to, the following: the relation of undergraduate experience to secondary school education and to post-college careers; the extent to which formal academic instruction should be connected to learning opportunities in the larger society; the appropriate duration of undergraduate programs and desirable variations upon the current four-year pattern which might be developed; and such problems as the size and composition of the student body, student-faculty ratios, methods of instruction, and evaluation of performance. The Commission further ought to explore the constellation of forces currently pressing upon undergraduate institutions, and its recommendations ought to be made within realistic projections concerning the future financing of higher education.[1]

The Commission which began its deliberations in early 1971 was originally composed of nineteen members—ten faculty, six undergraduates, and three administrators, and this number has remained relatively constant despite the inevitable attrition resulting from graduation, leaves of absence, and other reasons. Eight members have served throughout and several others have participated during most of the Commission's existence so that the rate of turnover had no deleterious effect on the continuity of the proceedings. The Commission included among its members successive Provosts, Deans of the College, the Graduate School, and Student Affairs, as well as senior and junior faculty, upper and underclassmen, members of minorities and women, and persons from all of the major academic divisions of the University. No member formally represented a constituency although each was able to contribute distinctive perspectives derived from his own experience and background. The Commission could thus call on a variety of intellectual styles and diverse educational philosophies, and virtually every shade of opinion was expressed and defended.

The Commission neither began nor carried out its work in an atmosphere of crisis nor in response to faculty or student demand for reform of the College. By all reasonable standards the education offered to Princeton undergraduates is extraordinarily good. Princeton has been consistently serious about its equal allegiance to research, graduate instruction, and undergraduate teaching. It has always been commonplace for senior professors to teach introductory courses and even President William G. Bowen has found time in the current academic year to serve as a preceptor in introductory economics. Indeed, Princeton has always devoted a remarkable share of its faculty resources to its undergraduate program—more proportionately than any other major institution.

There is no other college in which every junior and senior without exception carries programs of individually supervised independent work, including a substantial senior thesis, and in which most reading courses include small preceptorials as an adjunct to the lecture. Moreover, there are few institutions where undergraduates may serve in an apprentice relationship to senior scholars in science laboratories or enjoy parity with graduates in the use of other educational facilities. They have equal access to the rare book rooms of the Firestone Library, the cyclotron in the Jadwin Laboratory, and the data-processing machines in the Computer Center. Outside the classroom the student has always been able to participate in a large array of campus activities in a physical setting of great beauty.

The College has in recent years maintained its commitment to excellence through a balanced respect for tradition and a willingness to respond to needed change. During the past half decade Princeton has become a more diverse and interesting institution as a result of its decisions to admit women and to engage in energetic recruiting efforts which have substantially increased the number of minority students on campus. It has established Residential Colleges and Halls which have created greater variety in student life and has adopted such curricular and pedagogic innovations as new interdisciplinary programs, expanded opportunities for independent study, experience-based courses, flexible grading systems, creative arts offerings, and "unorthodox" senior projects.

The value that the alumni place on the Princeton experience is evident in the high rate of annual giving, their participation in regional and city alumni associations, the proportion who return for class reunions and in their responses to a recent survey conducted by the Commission. Eighty-three percent of those replying to a mail questionnaire in the classes of 1954, 1964, and 1969 reported that if they "had it to do all over again" they would decide to attend Princeton and the proportions were remarkably stable across all three classes (Table 1.1). Nearly three-fourths of the class of 1972, the most recent graduating class, responded in the same manner (Table 1.2) and the percentage will almost certainly increase as a combination of nostalgia and mature reflection alters their perceptions of their undergraduate years.[2]

President Goheen's decision to establish the Commission on the Future of the College was, then, not prompted by a sense of failure but rather by the desire to consolidate and further extend existing strengths. Princeton is justifiably proud of its present and past achievements but it is aware of the distinction between pride and complacency, and is determined not to permit the merely good to become the enemy of the best. During the latter part of the 1960's Princeton, like many universities, was diverted from systematic consideration of its educational policies by campus unrest and the consequent preoccupation with governance. Crises and intimations of crises prevented a full-scale assessment of our current program precisely at a time when the structures and processes of American higher education were called into question by an increasing number of critics. As President Goheen indicated:

> A number of considerations combine to make this an appropriate and desirable time for a major re-examination of undergraduate education. During recent years much has been done at Princeton to render our formal curriculum more flexible and more responsive to the interests of individual students and also to make it more sensitive to the social needs of our time. Concurrently, student life outside the classroom has become more diverse, and a new kind of residential University community is emerging. These recent changes on our own campus, and the more general, prevailing concern about the purposes and goals of American education, create the urgent need for a reappraisal of the entire undergraduate program in order that we may better anticipate and control the future.[3]

In accepting the President's charge the Commission on the Future of the College has tried to find answers for a series of broad interconnected questions: What educational goals do we most cherish? What other educational goals are we willing to sacrifice in order to achieve them? What price are we prepared to pay in scarce resources—money, time, and energy—to achieve our aims? What sectors of the University shall bear these necessary costs of attaining our purposes? What shall be the sequence of successive approximations toward ideal goals?

In addressing such questions we were obliged (1) to identify critical issues which required decisions, (2) to gather data to assist rational choice, (3) to calculate the range of benefits and costs of alternative courses of action, and (4) to draft a series of recommendations for improving the undergraduate program.

The major sources of data on which the Commission relied included (1) the pertinent literature on higher education; (2) consultation with all constituencies of the University, including faculty, students, alumni, the administration, and the Board of Trustees; (3) existing studies performed by various offices in the University; (4) evidence generated by the Commission; and (5) travel to other colleges and also secondary schools. Although we make no claim that our investigations were exhaustive, and indeed recommendations for additional study are included as part of this document, we made every effort to approach each problem with as much thoroughness and judiciousness as we could muster.

The Commission has tried to develop its recommendations at the appropriate level of generality with the consciousness of their interrelatedness and in full awareness of economic and other constraints. At the beginning of this enterprise the Commission had hoped to produce detailed proposals about virtually every aspect of the known cosmos. Hubris ultimately yielded to the reality principle and we were obliged to confine ourselves to a more limited but still formidable range of topics including admissions, student life, advising, size of the College, the structure of academic time, curriculum, pedagogy, evaluation of students and faculty, and continuing education. Each of these problems is extraordinarily complex and it soon became evident that we could not treat them individually at the same level of specificity as might an appropriate University committee which over the years had developed specialized expertise in a particular area. The Commission, therefore, made no effort to develop detailed blueprints for every sector but rather chose to view the College more generally as a total system whose constituent elements can be understood only in relation to one another. We have sought, nevertheless, to indicate promising directions and to develop proposals which can become the basis for legislation and administrative action. Indeed, in many areas, particularly those relating to the size and sex composition of the student body, the academic calendar, distribution requirements, and the evaluation system, some of the Commission's recommendations, can be considered for action in the form in which they are presented.

In developing the proposals of this report we have been aware of the constraints imposed by limited resources. The recognition of scarcity is the ultimate check on the extravagance of dreams. Economic pressures at Princeton, as elsewhere, are both severe and difficult to overcome. The combination of (1) more students and programs; (2) higher costs, caused by inflation and the inability of a labor-intensive enterprise to achieve significant increases in "productivity"; and (3) reduced income from governmental and foundation sources has produced a new austerity. It is especially important, then, that not only should every educational benefit be balanced against its educational advantages (e.g. the orderly content of a lecture versus the loss of spontaneity) but that it must also be measured against its economic costs. Every dollar spent on X reduces the funds available for Y and thus no educational recommendation which ignores financial considerations is wholly relevant or responsible.

The Commission, then, has resisted the temptation to create educational utopias and it has refused to be distracted from considering concrete issues by diversionary appeals to "tradition" or "innovation." History did not begin with us nor will it cease at our injunction. The present undergraduate program is the product of democratic procedures and organic processes and we were not disposed to shed the past for the sake of whatever educational novelties are temporarily in vogue. At the same time, we have no Panglossian illusions and we believe that reasoned, deliberate, and controlled change that is preceded by discussion by the entire University community is an indispensable condition for the maintenance of institutional vigor.

All of our proposals have been specifically addressed to improving the quality of education at a particular university with distinctive characteristics and properties. In this respect we have followed the precedent established by the Committee on the Education of Women chaired by Professor Gardner Patterson and the special Committee on the Structure of the University chaired by Professor Stanley Kelley. Each of these earlier reports dealt with a concrete problem facing Princeton but since other campuses confronted similar issues these documents proved to be of more than parochial interest.

Nevertheless, we have no desire to nominate Princeton as a suitable "model" for other colleges and universities. By 1980 an estimated 75% of young Americans eligible to attend will be enrolled in some type of post-secondary education. This heterogeneous population will be marked by diverse social characteristics, capacities, and aspirations. Good education can take many forms and the nation will require institutions which are as varied as the needs of its population. In this complex division of academic labor Princeton can best contribute by maintaining its dedication to excellence and by striving constantly to improve its program within the context of its central commitment to quality education and the liberal arts.

THE ENDS AND MEANS OF A PRINCETON EDUCATION

A fund-raising pamphlet first issued in 1752 by the College of New Jersey, later Princeton University, begins with an affirmation that was even then common lore: "Nothing has a more direct Tendency to advance the Happiness and Glory of a Community, than the founding of public Schools and Seminaries of Learning, for the Education of Youth, and adorning their minds with useful Knowledge and Virtue." The evidence for this assertion presumably rested on "Daily Observation" that "evinces, that in Proportion as Learning makes its Progress in a Country, it softens the natural Roughness, eradicates the Prejudices, and transforms the Genius and Disposition of its Inhabitants. New Jersey, and the adjacent Provinces, already feel the happy Effects of this useful Institution."[4]

Viewed from the perspective of our current perplexities, this encomium to higher education is at once familiar in content and remote in mood. The antique charm of eighteenth-century prose only partly conceals the resemblance between past and present claims. The academy is still regularly congratulated as the author of an astonishing number of our sacred and secular works. At the same time, there is a suggestion of attractive innocence in colonial wisdom, a certain sense of confidence and serenity, that is forever lost to the modern sensibility. The convulsions of our time and circumstance have rendered the received wisdom moot, and cast doubt both on the aims of education and the means through which desired goals should be sought.

To be sure, the image of a solid past as contrasted with current historical discontinuity is part myth. In the waning years of the nineteenth century, Woodrow Wilson deplored a growing intellectual agnosticism and yearned "for the old drill, the old memory of time gone by, the old schooling in precedent and tradition, the old keeping of faith with the past. . . "[5] More recently, after World War II, the Harvard Report on General Education concluded that "a supreme need of American education is for a unifying purpose and idea."[6] Nevertheless, the prominence of universities in the public consciousness and the intemperance of the national debate suggest a level of anxiety about collegiate education that is qualitatively different from the perplexities that confronted previous generations.

We have suffered no absence of counsel on the aims of education but much of this voluminous writing has been ill-tempered and too imprecise to serve as a guide for educational policy. The literature of educational reform has yielded rather more polemics than monographs and some of the most widely publicized prescriptions for change have been insufficiently attentive to constraints imposed by nature, social organization, or human limitations. It is fitting that we pursue ideals even if they are beyond our reach, but they should, in principle, be attainable through purposive action.

The first task, then, is to specify the major ends and means of a Princeton education and to reserve for the body of the report a more detailed elaboration of both. Any such effort should be responsive to the need for educational change but it may be at odds with much that passes for *avant garde* thought. Various critics of American colleges have suggested that they should be converted into instruments for direct social reform, transformed into utopias for continuing experimentation on the conditions of the good life, or changed into supermarkets where educational policy is determined exclusively by consumer preferences. The implied intent of such proposals is not so much to give new direction to the university but to abandon it as hopeless. There is no profit in inquiring about the purposes of a liberal education unless we are confident about the worth of college as an institution and the superiority of some types of education over others. The American college cannot survive in the face of a pervasive skepticism or indiscriminate relativism.

"A university anywhere," writes Clark Kerr, "can aim no higher than to be as British as possible for the sake of the undergraduates, as German as possible for the sake of the graduates and the research personnel, as American as possible for the sake of the public at large—and as confused as possible for the sake of the preservation of the whole uneasy balance."[7] The valuable insight that a university must serve more than one master has too often been debased because it has seemed to rest on philosophical ambiguity and political compromise. The willingness to be all things to all men may be the outgrowth of an educational theory but more commonly it signifies a failure to achieve a consensus on goals or serves as a means of pacifying disputing factions in the campus community. There can be no question that within generous limits faculty and students should be free, according to their individual inclinations, capacities, and aspirations, to choose their own paths to teaching and learning. But freedom is not the same as default and educational policy consists precisely of mobilizing scarce resources on behalf of a limited number of experiences which might plausibly be defended as yielding instructive knowledge about nature and human nature.

It is well to remember that collegiate education is subject to inherent constraints which reduce its impact including innate restrictions on human malleability, the intrinsically narrow boundaries of formal education as compared to the total socialization process, and events beyond graduation which dilute and modify the effects of the college years. For these reasons colleges can exercise only restricted sovereignty over the lives of students and they have no warrant to define undergraduate study as if it were coextensive with all of life. No single university can aspire to offer all legitimate forms of schooling much less total education in the most inclusive sense.

The Commission on the Future of the College throughout all its deliberations and in all its discussions about countless technical matters never lost sight of a number of principles which unify the diverse elements of undergraduate education at Princeton. The propositions which appear below and are elaborated in the sections which immediately follow are stated at various levels of generality and refer to means as well as ends but each, in its own fashion, seems to us to have important consequences for educational policy.

1. Higher education should serve both social and individual purposes; it should simultaneously equip a student to realize his full human potentialities and to contribute to the life of his community and nation.

2. Princeton should influence student outcomes in four principal areas: knowledge, skills and tastes; career and profession; values and attitudes; and character and personality.

3. Academic excellence is best achieved by teacher-scholars affiliated with departments and programs and organized in a single faculty which is responsible for instruction at both the graduate and undergraduate levels.

4. The University should encourage both breadth and depth of learning by providing the opportunity for study in the natural sciences, social sciences, and humanities and by encouraging students to develop a more intensive mastery of limited bodies of knowledge, particularly through demanding independent work.

5. The bachelor's degree should symbolize the completion of only one phase of the total educational process rather than its culmination and accordingly a primary aim of collegiate education is to develop in students the understandings and motivations which lead to a continuing process of self-directed learning.

6. A residential community, a university of modest size, small classes, individualized instruction and opportunity for personal interaction between faculty and students are important features of the present learning environment which should be retained in the future.

7. The University should encourage a high degree of diversity in its academic and extra-curricular programs and in the composition of the student population.

Social and Individual Goals

The Princeton experience serves both individual and social purposes and its success may be measured in part by how clearly and in what ways these are aligned. Graduates who possess personal integrity, breadth and depth of learning, disciplined intelligence, creative imagination, civility, compassion, and a commitment to democratic values and social justice will simultaneously enrich their own lives and honor the educational goals of the University and the broader purposes of society. Many Princeton undergraduates will in due course occupy leadership positions in all areas of American life. In a world grown maddeningly complex the personal traits of leaders in government, commerce, industry, and the professions are a legitimate source of general concern. The beliefs and actions of a relatively small number of strategic people may exert an influence beyond their number. The decisions that shape our lives increasingly rest on specialized knowledge that is hidden from ordinary comprehension. Our survival and public happiness rest *inter alia* on the innocent hope that educated people will behave responsibly in their vocations and as citizens and that their use of power will be restrained by the knowledge, values, and traditions first learned in the academy.

In an era of unprecedented social change it is difficult to predict what will be required of Princeton alumni in the coming decades and indeed whether the future will be a recognizable extension of the past. An extensive doomsday literature warns us of impending overpopulation, economic collapse, energy depletion, suffocation by pollution and the war of all against all. Other voices speak of a post-industrial age in which there will be no scarcities and people will devote their attention to the "quality of life" and society will arrive, at last, in a New Age where all men shall be as brothers. Both versions of the future are possible and neither is inevitable.

There appear to be grounds for hope despite the daily headlines which testify to the contrary. There is a discernible stirring in the land, a sense that the unexamined life is, indeed, not worth living, a yearning for novelty and adventure, a conviction that the universe is awry and mankind is capable of better. But a New Age, if it comes, will not arrive tomorrow. The issues that confront us now will not yield to poetic vision and if we grant only that machines, numbers, size and complexity will not vanish we shall not soon escape the obligation to organize contemporary society so that it is at once prosperous and habitable. We will not be released by historical determinism from the moral and technical tasks of creating communities which are as humane, spontaneous and free as possible given the inevitable constraints imposed by a complex industrial society in the decade of the seventies.

A graduate who has truly absorbed the meaning of the Princeton experience will pursue his private vision of the future, acknowledge his debt to the past, and accept the realities of the present. He will be impatient to correct social evils but he will take pains to inquire where in contemporary society there exist degrees of freedom for the conscious direction of man's fate.

Some sorrows arise out of the human condition; men and women are haunted by the Kantian questions, "What can I know? What dare I hope? What can I do?" and die before they learn the answers. Other problems are intrinsic to any modern society and still others are generated by specific forms of social, economic, and political organization and require institutional solutions and structural changes. One of the most felicitous outcomes of the Princeton experience in liberal education would be the capacity to distinguish what must be borne from what might be overcome. Responsible citizenship consists of mobilizing poetry and reason in the service of causes than can, in time, be won.

Cognitive and Non-cognitive Goals

The university's primary functions, its raison d'être, and the purpose to which all else is related are the preservation, transmission, and creation of knowledge and the arts. It needs no further excuse for being. The college as Alexander Meiklejohn said, "is fundamentally a place of the mind, a time for thinking, an opportunity for knowing."[8] The disparagement of intellect in the name of social reform, existential meaning, or pedagogical innovation rests on simplistic extrapolations of Freud, Marx, and Dewey,—the thesis that thought is merely a mask for emotion, that ideas are always superimposed on power, that books are only pale substitutes for experience. As against this, the university rightly maintains that the urge to know, to understand, to indulge the frivolous and holy motive of curiosity is as imperious as any among basic human impulses. The perception of fact and pattern, the cultivation of tastes and sensibilities, the development of competence and dexterity are manifestly private joys and public treasure.

The mind has its own demands and perhaps more so for the new generation of students than for its predecessors. Many observers, among them President Goheen, have noted that "so many of our students seem to be bringing into the freshman year higher levels of competence than used to be the case."[9] If catalogue descriptions of college preparatory courses are any index of what is actually learned then it is clear that by the time some students enter Princeton they have read Sartre and Genet, Sophocles and Aristotle, Marx and Freud, and have routinely achieved a level of sophistication that would have been regarded as precocious in an earlier era. If this new generation nurtured by more knowing parents and teachers and made preternaturally worldly by television is to derive intellectual sustenance and excitement from the collegiate experience it must be "higher education" in the truest sense of that term.

Students who are exposed to scholars in the forefront of the traditional and newly developing fields of knowledge are beneficiaries of the best that a university can offer. All of the College's other functions, its contribution to occupational competence, the development of personal and social values, and to character and personality are all intimately connected to its intellectual functions. The achievement of goals outside the cognitive domain is an important adjunct of undergraduate education but the university would forfeit its peculiar power in these areas if it elevated them above its fundamental commitment to scholarship.

It hardly needs saying that a majority of undergraduate programs either prepare students for a vocation or render them eligible for further education which leads to a career. Moreover, even general education, which is a constituent element in all university-based collegiate programs, is instrumental in enhancing occupational competencies. Rapid change is hostile to narrow expertise and a curriculum that emphasizes breadth and flexibility may better prepare students to meet unpredictable vocational demands. The numerous corporation-sponsored programs of humanistic studies are conspicuous illustrations of unsentimental wagers on the utilitarian value of the liberal arts.

Collegiate instruction in the moral sphere is also achieved by a combination of direct and indirect methods. An undergraduate curriculum should expose students to the range of ethical prescriptions in the literature of philosophy and religion which throughout the centuries have defined the nature of moral choice. Moreover, whenever relevant, every significant aspect of individual and social behavior should be examined from a moral perspective. Scholars have no special gifts as moral seers but they can claim superior expertise in specifying the consequences of alternate courses of action. They can help specify the probability that people can achieve whatever aims they seek, if they would find success pleasing, and whether they desire particular outcomes for the reasons professed.

It may well be that the most influential moral instruction is achieved through example and by introducing students into the thoughtways of scholarship. It is difficult to imagine a more bountiful ethical system than is implicit in the norms that sustain the process of inquiry. As Jacob Bronowski has observed, "All scholars and their work are of course oddly virtuous. They do not make wild claims, they do not cheat, they do not persuade at any cost, they appeal neither to prejudice nor to authority, they are often frank about their ignorance, their disputes are fairly decorous, they do not confuse what is being argued with race, politics, sex, or age, they listen patiently to the young and to the old who both know everything."[10]

This ode was, of course, intended as an expression of an ideal and like all ideals, it is frequently violated. Nevertheless, the pursuit of truth and the practice of civility is a routine vocational requirement of the scholar's craft and the teacher's art. The true teacher-scholar cannot work at all without also being an exemplar of a moral code that is itself profound, complex, and demanding.

The University's role as moral agent extends also to those extracurricular experiences that supplement and support more formal academic work. The capacity to sustain an interest and participate in voluntary groups has always been a test of character. At Princeton, the transfer to students of responsibilities that were formerly held *in loco parentis* and the new structure of campus governance provide even more significant opportunities for moral growth. Students have increased responsibility for defining their own life patterns, to ponder the elusive character and requirements of the notion of community, and the opportunity, for example, to serve on the Council of the Princeton University Community where they participate in decisions affecting every major aspect of institutional existence: corporate relationships, educational programs and internal order. Such participation is, so to speak, laboratory instruction in the processes of moral choice and students may emerge from this experience less dogmatic and doctrinaire, more tolerant, and more receptive to different points of view.

Ethical instruction in a university, then, is imparted by exposing students to the procedural norms of scholarship, by systematic examination of rival moral doctrines, by the analysis of the value implications of contending modes of personal and social behavior, and by providing an arena where decisions are required and moral theory and practice intersect.

The university as an institution has no partisan ethical message except its fidelity to the values of freedom, the *sine qua non* without which scholarship cannot prosper. Its most enduring commitment is to the metaphor of "the marketplace" as it applies to ideas and values. All provisional commitments must compete with the heritage of the past and the still unimagined formulations of the future. It would be presumptuous, therefore, and philosophically arrogant to "settle" questions, to arrive at "ultimate" solutions, to dispose of issues, in ways which preempt the intellectual prerogatives of future generations. If the history of ideas is in part the history of error it is always conceivable that today's law is tomorrow's folly. The scholar takes his stand with the values that sustain free and conscientious inquiry and these are for him near absolutes. Otherwise he approaches the universe with a wrinkled brow.

The student, then, inhabits a moral and intellectual universe with certain fixed stars but he is invited to find his own paths to the true, the good, and the beautiful. The university's provenance over his personality as contrasted with his intellect is even less restrictive. It is true that the undergraduate who is exposed to courses in sociology, psychology, literature, and the arts can hardly escape some shock of recognition; the lecturer is, so to speak, talking about him. The salience of the exposition may be temporarily concealed by the language of scholarship, but the classroom will ultimately connect with experience, and the student may well develop a heightened sense of self-consciousness and personal involvement.

The university is, however, not primarily a psychological but an intellectual community. Colleges lack the competence, the resources, and it is hoped the inclination to use the curriculum as a vehicle for shaping personality. There are, nevertheless, several important contributions of the Princeton experience to personality development: (1) Serious study in any branch of knowledge entails a delicate balance between passion, discipline, deferred gratification, tolerance of ambiguity, and cultivated irony which taken together constitute many of the primary elements of what we call character; (2) Faculty, fellow students, and other members of the University community can serve as models and offer friendship and support as young people confront the characteristic perplexities of early adulthood; and (3) the college years provide something of a psychological moratorium during which an undergraduate has both the leisure and social approval to engage in continuous self-discovery and even in some experimentation with various life styles. At the end of this period he should know better who he is, and wishes to be, and what kind of life he can endorse.

Teacher-Scholars in a Single Faculty

Knowledge is best transmitted in a setting where it is also created. The College is a component of a university which is also responsible for maintaining excellence in graduate studies and research. This diffusion of intellectual energy adds vigor to undergraduate instruction. Indeed, a community of teaching scholars who are authorities in their fields, dedicated to advancing their disciplines and eager to transmit their knowledge can provide undergraduates with the most bracing of all learning environments. These characteristics of universities can perhaps best be sustained by a single faculty which is responsible for both graduate and undergraduate instruction and is organized into departments and programs.

Scholars who are dedicated to their own disciplines are not, as it is sometimes claimed, thereby defenders of "narrow" and "parochial" interests. As President Bowen has recently remarked,

> I would end my short list of major changes or developments by noting the increasing complexity and interdependence of fields of knowledge. As I talk with prospective faculty members—in fields ranging from the classics to medieval history, to bio-chemistry, plasma physics, and the life sciences—I'm struck anew every time by the extraordinary pace of intellectual change and by the extent to which what were once separate fields of knowledge and separate disciplines are being forced together, and I think that's going to have important ramifications for higher education.[11]

Breadth and Depth of Learning

Two decades ago Professor Joseph Strayer was moved to inquire, "What are Princeton's goals in undergraduate education?" His answer remains as pertinent now as then:

> First, good teaching, by men who are expert in their fields of knowledge. All faculty members are supposed to be able to teach undergraduates—there is no separate graduate faculty as a refuge for men who will not master all of the fundamental arts of the profession. There is also no place for the faculty member who does not continue to grow in knowledge and understanding. Second, responsibility of undergraduates for their own education. Students are carefully selected by ability and character; they are supposed to be able to do more than merely memorize books and repeat the ideas of their teachers. They must be able to plan their own work and form their own conclusions—neither the senior thesis nor the comprehensive examination can be passed by cramming and parroting. Third, direction and purpose in the planning of each undergraduate's program. After a sampling of broad areas of knowledge, the undergraduate must concentrate in a department or an inter-departmental program, so that by his senior year he has learned something about the structure and content of a particular discipline. There are dangers in this policy, and the university must constantly guard against the evils of overspecialization, but at least it does not have to worry about superficiality and lack of direction.
>
> These goals are so deeply rooted in Princeton tradition that they hardly need the protection of faculty legislation or administrative directives. They are accepted without question by the great majority of the faculty and undergraduates. It would take an almost unimaginable catastrophe to change them.[12]

The student so educated will not engage in bootless quarrels about the relative primacy of various forms of knowing. The humanities and the natural and social sciences in both their "pure" and "applied" forms each add to our understanding of the natural and social universe. The moon belongs both to astrophysicist and to the poet and the student who forfeits the perspectives of either is thereby impoverished.

Lifetime Learning

No student short of genius can master more than a minute fraction of the existing stock of knowledge by the end of his undergraduate education and Princeton's success will be measured in part by how many are stimulated to continue a lively interest in the life of the mind beyond graduation. The impulses which move young men and women to remain intellectually alive are poorly understood but they are not as mysterious as the learning theorists pretend. They can be strengthened during the college years by inviting students to share the exhilaration of past triumphs over ignorance, by making them aware that there remain questions that deserve to be answered, by stimulating them to submit to a regimen which can generate a reasoned response and by helping them to cultivate the ironies that make ambiguity tolerable. It is the style and discipline of scholarship rather than its substance which remains the permanent legacy of the undergraduate years.

The Learning Environment

It is Princeton's great achievement that it has managed to become a major research university while still preserving that dedication to undergraduate teaching which is the most valuable feature of the distinguished liberal arts college. Moreover, the fundamental loyalty of the faculty continues to be to the University rather than to the departments. Students, for their part, share that common sense of community which so many have found so rewarding in the Princeton experience. It is also one of the principal reasons why the overwhelming majority has so consistently adhered to the highest standards of civility and democratic participation.

All of these precious features of the Princeton setting are appreciably related to the modest size of the University. There is no way of determining a threshold number beyond which there results a qualitative difference in campus life, when mechanically applied rules replace personal judgment, when colleagues have no names, and students have no faces. In planning the course of the future nothing seems more important than maintaining the human scale and distinctive educational values which have traditionally been a special source of Princeton's strength.

The advantages of small numbers are also manifest in the transactions of the classroom. Since "optimum class size" varies with the nature of the participants and the aims, methods and content of the course, students should be exposed to both large and small groups but much of their education should be in precepts, seminars, and in tutorials associated with independent work. There is no substitute for the personal and sustained interaction between teacher and students who know each other as people rather than as remotely familiar names in a class list or catalogue.

In an important sense students not only learn from their mentors but from each other. Although he was engaging in hyperbole, Cardinal Newman indicated more than a century ago why the residential university furnishes the most felicitous setting for learning, the development of self-knowledge, moral standards, and a sense of community. The following passage refers exclusively to young men but in no other respect does it need to be amended:

> I protest to you, Gentlemen, that if I had to choose between a so-called university, which dispensed with resident and tutorial superintendents, and gave its degrees to any person who passed an examina-

> tion in a wide range of subjects, and a university which had no professors or examinations at all, but merely brought a number of young men together for three or four years . . . I have no hesitation in giving the preference to that university which did nothing, over that which exacted of its members an acquaintance with every science under the sun . . . When a multitude of young men, keen, openhearted, sympathetic, and observant, as young men are, come together and freely mix with each other, they are sure to learn from one another, even there be no one to teach them; the conversation of all is a series of lectures to each, and they gain for themselves new ideas and views, fresh matter of thought, and distinct principles for judging and acting, day by day.[13]

Diversity in Students and Programs

Princeton attaches great importance to the presence on campus of a diverse student population with varied social and individual characteristics. The opportunity to gain a broader perspective through association with people from virtually every background—regional, religious, ethnic, social and economic—and with friends with various intellectual, artistic, and athletic talents is one of the most instructive consequences of the Princeton experience. The advent of coeducation and the University's success in attracting blacks and other minorities has made the life of the community more broadly representative of the wider society and added new vitality to the total educational process.

Universities have a special role in habituating young people to a peaceful and productive pluralism which acknowledges the contributions, respects the life patterns, and is sympathetic to the aspirations of diverse groups and cultures. The capacity to cherish both the resemblances and differences in humankind is one of the hallmarks of an educated man or woman. Students who are open to their fellows who have led other lives, and hold other beliefs will emerge from college with a more complex view of human experience.

The College is committed to certain fixed goals but its program reflects the conviction that if students differ so must education. Admissions policies, the range of academic offerings, modes of instruction, and methods of evaluation; varied means of guidance and counselling; alternative patterns of student life; and the scope of extra-curricular activities all testify to an institutional commitment to diversity within the larger unity of identification with Princeton. The University is, and by rights ought to be, responsive to the paraphrase of Clyde Kluckhohn's and Henry A. Murray's classification of human memberships: Every student is in some respects (1) like all other students, (2) like some other students, and (3) like no other students.

The Commission shall return repeatedly in the main sections of this document to our shared assumptions about the ends and means of a Princeton education. They have characterized its past and should guide its future. We know of no better standards against which the community might judge our efforts.

CHAPTER 2

The Student on Campus: Composition, Undergraduate Life, Provisions for Advising and Counselling

CONTENTS

COMPOSITION

Academic Quality
Diversity
Transfer Students
Visiting Student Program
Minority Students and Women
Elements of Homogeneity

UNDERGRADUATE LIFE

The Context of Student Life
Types and Varieties of Subcommunities
Problems Confronting Residential Colleges
Students Not Enrolled in Clubs, Colleges, and Halls
Types and Varieties of Campus-Wide Resources
Extra-Curricular Activities

ADVISING AND COUNSELLING

Academic Advising
The Counselling Center
Career Services

COMPOSITION

Princeton's undergraduate program is based on (1) academic and extra-curricular excellence, (2) demographic, cultural, and personal diversity, and (3) a learning environment in which each of these can thrive. These commitments are reflected in admissions policies and procedures which are designed to enroll students with a high potential for effective participation in the intellectual and extra-curricular life of the College. The composition of the student body is, of course, one of the critical variables in the College experience since able students can best profit from instruction by a distinguished faculty. This is all the more true since the Princeton setting encourages professors and students to meet in numerous planned and chance encounters which extend the educational process beyond the classroom.

Equally important, a residential campus is preeminently a place where students can learn from one another. Surely learning occurs wherever students meet—in dormitories, in dining halls, at parties, on athletic fields, in committees, during midnight precepts, and in all those places where people reveal their knowledge, experience, and feelings. They will learn most when they are exposed to a heterogeneous population rather than to a narrow sample drawn from a restricted universe. The college years should rescue undergraduates from the parochialisms of birth and station, challenge their ethnocentric loyalties, and introduce them to more authentic insights into the varieties of human perception and behavior.

The high value that Princeton places on a diverse student body with superior academic potential requires a large applicant pool of such students, effective procedures for identifying them, and a high proportion who actually accept admission. During the administration of President Robert F. Goheen, the University exercised increasing selectivity in the admissions process. In the fifteen-year period from 1958 to 1972 the number of applicants to the University grew nearly every year from 3213 to 8446 or an increase of about 170 percent. During the same interval the ratio of those admitted to those that applied declined from 40 percent to between one-fifth and one-fourth in the past five years. (Table 2.1) These dramatic developments are partly a tribute to Princeton's reputation for excellence and partly a function of general demographic and educational trends. The number of college-age youth has increased as has the proportion who seek admission to quality colleges. As a result the University has become more selective and in comparison to the past students now come to Princeton with more impressive academic and extra-academic credentials.

Academic Quality

Our confidence in the improved quality of a student body is tempered by the recognition of the uncertain state of the art in predicting academic performance in college:

1. There are no predictors of academic success which consistently yield correlations greater than 0.5 with subsequent performance in college. Even the most powerful measures thus explain only about 25 percent of the variance in academic achievement.
2. Achievement in secondary schools as measured by grades and overall average or by rank in graduating class when suitably adjusted for size of class and quality of the school is the best single predictor of success in college.
3. The efficiency of prediction is increased somewhat by taking into account standardized test scores as well as secondary school grades. The correlation between these measures is high and there is some evidence that either could be used independently of the other without substantial loss in predictive power.
4. There are consistently positive and strong intercorrelations between measures of secondary school achievement, college performance, and socioeconomic status as defined by father's income, occupation, or education.
5. The use of "non-intellective" factors, such as participation in extracurricular activities, scores on personality tests, and demographic variables other than socioeconomic status seldom provide additional strength to the prediction of academic success.
6. The accuracy of academic prediction is greater for women than for men and about the same for black as for white students.
7. There do not appear to be any current studies which measure the efficacy of test scores versus nomination by teachers, guidance counselors, or other school officials.[1]

These generalizations should be regarded with considerable caution. The research which sustains them is sometimes of questionable quality and the Admissions Office necessarily acts on the basis of some combination of quantitative measures, experience, and common sense. The measures of academic quality which influence admissions decisions include secondary school grades, the reputation of the school, class rank, SAT Verbal, Mathematics, and Achievement scores, Advanced Placement records, recommendations by school officials and teachers, and a written statement by the student. This extensive information is then converted into a composite rating on a five-point scale where one is the highest and five the lowest.

The summary rating is more highly correlated with subsequent academic performance as measured by freshman grade point average than is any other predictive measure. For the class of 1972, for example, the coefficients were as follows:

Academic Rating by Admissions Office	.54
Secondary School Relative Grade Point Average	.46
SAT Verbal Score	.43
SAT Mathematics Score	.34
Secondary School Relative Class Rank	.19

This rank order among predictors has been stable for the five most recent graduating classes and the differences in the magnitude of relationships has sometimes been substantial.

There is also a direct linear relationship between the composite rating and various indexes of academic proficiency later in the student's undergraduate career. For instance, comparison of the achievements of students rated "Academic One" with those rated "Academic Three" shows that the proportion who are enrolled in Phi Beta Kappa is 28 percent and three percent respectively while two-thirds of the former and less than one-third of the latter graduate with honors. (Table 2.2) The current admissions procedures for rating academic performance thus seem, on the basis of the available evidence, reasonably effective.

The number of students in each entering class who are rated "Academic One" has increased from about 100 in 1967 to about 150 in 1972. (Table 2.3) This is a deceptive statistic for it conceals a complex set of circumstances which are a source of mixed concern and gratification. It is, for example, noteworthy that the rate of increase in such students has only slightly exceeded the rate of growth in the total size of the class so that their proportion (12.5 to 13.5 percent) has remained virtually constant. Moreover, the rise in absolute numbers of the most academically talented group in the student population is mainly attributable to the increased size of the applicant pool which is sufficiently large to compensate for the decreasing proportion of candidates who accept admission. Since the number of the most academically gifted students who were admitted to Princeton more than doubled (from 202 to 418) during this period this extraordinary rate of increase has been more than enough to offset the steady decline (51 to 35 percent) in the proportion who actually enrolled.

It is hardly surprising that the yield for "Academic Ones" has consistently been about 15 to 20 percent below the yield of the total class.

These students can ordinarily choose from a larger number of alternatives. Indeed the fact that nearly two-thirds of the "Academic Ones" who in 1972 declined Princeton's offer of admission were lost to Harvard/Radcliffe, or Yale and an additional 14 percent entered the Massachussets Institute of Technology, the California Institute of Technology or Stanford suggests clearly that we are competing for these students with the most selective colleges. Princeton now seems to attract applications from an increasing number of students who in the past would not have been as impressed with its academic advantages.

Of the "Academic Ones" who have overlapping applications with Princeton and other institutions, approximately one in three chooses Princeton. Those who go elsewhere distribute themselves among a very few institutions: the overwhelming number go to Harvard/Radcliffe and a substantial number to Yale. Last year, for example, of 329 students applying to both Harvard/Radcliffe and Princeton, 259 went to the former and 70 to the latter; of 342 students applying to Yale and Princeton, 204 went to Yale and 138 to Princeton. By contrast, Princeton outdraws all of its other major competitors including MIT and Stanford. (Tables 2.4 and 2.5)

Discussions with gifted high school and college students throughout the United States would lead one to conclude that the Princeton "image" suffers from the defects of its virtues. The University is widely admired for the distinction of its educational programs and the quality of its campus life, but stereotypes of an earlier age still persist. The ghost of F. Scott Fitzgerald is not easily laid to rest and too few know how well Princeton has succeeded recently in both honoring its history and initiating important needed change. The Admissions Office has done much and more remains to be done in conveying to prospective undergraduates some sense of the intellectual vitality, sense of community, and liveliness which may be said to characterize the Princeton experience.

According to a survey of gifted high school seniors by the Commission and the Educational Testing Service the preference of students for particular colleges is more often directly influenced by their parents than by any other source.[2] *Accordingly, the Commission urges the University to adopt several additional measures to acquaint secondary school students and their families with the nature of the undergraduate program*:

1. *The recent effort of the Admissions Office to provide prospective students and their parents with an opportunity to have direct contact with faculty and students at Princeton by means of an Orientation Day on campus should become an annual event.*
2. *Whenever feasible, faculty and administrators who address regional*

alumni groups should arrange in cooperation with Schools Committees to meet with college-bound high school seniors and their families.

3. *The Admissions Office should also consider in what additional ways undergraduates might be helpful in reaching potential applicants in their home regions.*

The emphasis on enlarging the applicant pool and increasing the yield of students with the highest academic ratings should not obscure the fact that all indicators reveal a collective statistical portrait of the presently enrolled undergraduates as an extremely able and energetic group of students. The proportion of freshmen who rank in the upper two deciles of their secondary school classes normally hovers around 90 percent and between three-fourths to four-fifths of the students rank in the upper tenth of their graduating classes. Average SAT scores which for the class of 1976 were slightly lower than usual (Verbal, 630; Mathematics, 668; and Achievement, 662) were during the preceding five years both high and generally stable (Verbal, 640-648; Mathematics, 674-690; and Achievement, 658-679). (Table 2.6) Princeton also has been consistently among the leading institutions in terms of the number of students who submit themselves for Advanced Placement examinations. According to a release by the College Examination Board in May 1971, Princeton ranked sixth in the nation with 561 candidates who took 1071 examinations. The only universities which had a larger number of candidates were Michigan, Cornell, Harvard/Radcliffe, Yale, and the University of Utah.[3] This record is all the more remarkable since all of the other institutions have larger freshmen classes than Princeton's. Data for the class of 1975, the most recent for which information exists, show that in most subject areas more than 90 percent of the Princeton candidates received the passing grade of three or higher.[4]

According to the findings of a study sponsored by the Commission in 1971, the applicant pool is sufficiently deep and Princeton's attractiveness is sufficiently strong to permit us nearly to double the number of enrolled freshmen without materially diluting the quality of the entering class. The investigation proceeded in four stages:

1. With the help of the ratings schemes used by the Admissions Office we were able to establish a rough ranking of the more than 8000 candidates who applied for admission to the class of 1975. Of these applicants over 2000 were admitted and about 1100 actually enrolled. Another 1400 applicants were identified as possessing academic and personal qualifications which were virtually indistinguishable from many students who had been admitted.

2. A "success ratio," a measure of Princeton's attractiveness relative

to other institutions, was established by computing the percentage of students who selected Princeton in preference to each school to which they were admitted.

3. The institutions actually attended by the 1400 marginal applicants who were not admitted by Princeton were elicited by means of a mail questionnaire.

4. Assuming that the same "success ratios" will apply to the marginal group as to those offered admission by Princeton, we are able to predict that almost 70 percent, or a total of about 950 marginal applicants would have enrolled at Princeton if they had been given the opportunity to do so. Thus, it would have been possible to increase the size of the entering class by over 80 percent without markedly reducing the overall quality of the student body.[5]

This study was limited to the class of 1975 but although it is conceivable that this group was atypical in some way it is improbable that a replication of this inquiry would result in markedly different findings. It is obvious also that a major change at Princeton or at any of its competitors might alter the observed "success ratio." Nevertheless, barring some drastic decline in Princeton's relative attractiveness it seems evident that under all currently imaginable circumstances we are assured an undergraduate population of highly competent students.

Diversity

In recent years Princeton has sought to attract not only students who are gifted academically but also those with diverse talents, experiences and backgrounds. The Admissions Office summarizes non-academic achievement while in secondary school on a composite five-point scale similar to its academic ratings. This judgment is derived from items on the application form referring to non-academic honors or distinctions, principal extra-curricular and community activities, and employment records. The principal or college adviser is also asked to estimate the quality of the student's character, personality, and leadership ability. In addition, a "Teacher's Report" includes a question about the applicant's "character, aims, and values."

The mere recitation of particular secondary school activities has equivocal meaning. It is difficult to establish the quality of participation or its connection to behavior in college. The Admissions staff has, accordingly, begun to take a more skeptical stance toward some of the traditional extra-curricular credentials offered by candidates. In the case of applicants who were, for example, student council presidents, editors of newspapers, captains of teams, or heads of various clubs, the Admissions Office now makes a special effort to look well beyond titles for detailed evidence of real talent, accomplishment, or personal strength.

Despite this more cautious approach to extra-academic achievement, during the past three admissions seasons the proportion of students who received a non-academic rating in the first two groups ranged between 56 and 60 percent of the entering class. These ratings have been awarded for an increasing variety of non-academic activities, interests and talents which promise to add much to the quality of life in the University community. In particular, there has been an encouraging increase in the number of candidates with an expressed interest in theater, music, and other creative arts, essentially in response to the new programs in these areas now available at Princeton. As these programs further develop it should be possible to admit even more students with outstanding creative and artistic ability.

As part of the effort to ensure a diverse student population four sub-groups, i.e. engineering candidates, alumni sons and daughters, minority students, and applicants with athletic ability receive special consideration in the admissions process. (Tables 2.7 and 2.8) During the admissions season of 1969-70 shortly after the Trustees' decision to introduce coeducation at Princeton, the number of the most qualified candidates, measured on both academic and non-academic grounds, and referred to as "Group I," doubled from about 500 to over 1000 men and women. Although the size of the entering class has now grown to 1100 students, the larger number of Group I candidates has reduced the spaces available for students with very good credentials (Group II) who are not included in the special categories; in addition, it has simply made the whole admissions process "tighter" and more competitive.

In the light of this increasingly keen competition for places in the class, the Faculty Committee on Admission and Financial Aid requested in the spring of 1971 a study comparing the academic and non-academic characteristics of applicants admitted in the special sub-group selection rounds with the best of the candidates on the alternate list. The Committee concluded that the two groups were in most respects comparable and endorsed current admissions policies.

The attention to demographic, cultural, and personal diversity means that in the course of his or her education an undergraduate will encounter fellow students representing virtually every geographical region (Table 2.9), income level, social characteristic, educational background (Table 2.10), and academic and extra-curricular interest. The current student population thus reflects the University's commitment to both stability and change. Thus, for example, although two-thirds of all freshmen in 1960 were graduates of independent schools, with the remainder having attended public high schools this proportion has since been almost precisely reversed. (Table 2.10) During roughly the same interval, alumni children, who may be expected to be especially attuned to the continuity of Princeton's history have constituted a relatively stable proportion of between 15 and 20 percent of each freshman class. The University has also been sensitive to the importance of intercollegiate athletics as a means of providing a common bond between present and past generations of Princetonians. Moreover, competitive sports add diversity, interest, and a sense of holiday to community life, serve as a source of unity for all constituencies on the campus, and furnish another link between the University and its neighbors.

Transfer Students

Princeton received about 750 applications for transfer in September 1972, an increase of 120 over the previous year. This increase occurred despite the fact that the University does no active recruiting of transfer candidates and if anything actually discourages potential applicants by informing them about serious problems of competition resulting from the small numbers of transfer places available. Seventy-five students were admitted—38 men and 37 women—and of these about 80 percent accepted admission, a remarkable total since several colleges such as Dartmouth and Yale which might be expected to attract some of these same students were also increasing the number of their transfer admissions.

Transfer students bring great strength to the University: they tend to know why they want to apply to Princeton and their reasons are usually based on accurate information; they have already demonstrated their motivation to perform well in college and they generally continue at the same level of proficiency; they bring a new perspective which balances an occasionally more jaded view of a student who has spent all of his time at the same place; and they add a quality of diversity to the University that is not to be found in the freshman applicant pool. Of the 75 admitted for September 1972, there were eight community and junior college students, several married students (both men and women) with children, and two students who were admitted on a part-time basis.

Princeton transfers continue to do extremely well academically. One measure of this is the extraordinarily high representation of transfers on Phi Beta Kappa and departmental honors lists. Although comprising only ten percent of the graduating seniors in the class of 1972, transfers accounted for 32 percent of the Phi Beta Kappa initiates. They also received a disproportionate share of degrees awarded with honors, 61 percent as compared to 46 percent of the total class.

Several things seem worth emphasizing as we consider what should be

Princeton's policy toward transfer students in the future. The relatively large number of transfers admitted in the last three years was more the result of the shift to coeducation than to any decision about the desirability of transfers *per se*. Yet, our experience over this period has shown that an extremely able and interesting pool of transfer applicants exists, that Princeton is attractive to the best of these students (witness the high "yield" on admits), and that transfers who enroll do extremely well academically. This latter fact is no doubt a reflection of the increased maturity and intellectual motivation of students who decide to enter Princeton after having attended another college.

The Commission holds that all of these factors speak for a policy of maintaining the number of transfer students at least at the present level (50-60) and for increasing their number, if possible, contingent upon the quality of the applicant pool and the availability of dormitory space.

Visiting Student Program

Eleven upperclassmen from other colleges and universities were admitted into the new Visiting Student Program which was established on an experimental basis during the Spring term 1971-72. This program was created as a result of two complementary forces: (1) increasing interest on the part of students from other colleges in spending time at another institution for the purpose of pursuing particular academic programs or experiencing a different collegiate environment, and (2) the availability of classroom and dormitory space in the Spring term due to in-term attrition.

The College, therefore, admitted a limited number of juniors and seniors, some from smaller colleges who sought the opportunity for more specialized work in their majors and others from larger institutions or undergraduate professional schools who thought they might benefit from exposure to a liberal arts environment.

Each Visiting Student was enrolled in four courses and they acquitted themselves well as indicated by a grade distribution of 15 A's, 22 B's, 3 C's, and 4 Passes. Ten of the students joined either an eating club or a University-sponsored facility and all seemed to adjust to Princeton with greater ease than had been anticipated. The program seems to have been in all respects successful, is being continued in the Spring of 1973 and should be watched closely with the possibility that it might become permanent.

Minority Students and Women

The historic decision by the Trustees in 1969 to admit women and the University's continuing efforts to attract qualified minority students, have brought additional and welcome dimensions to the life of the campus. In 1958 the freshman class included two black students and even as late as 1967 their number had only increased to 14. The contrast between this period and the admissions season of 1971-72 is extremely encouraging. A record number of black students (654) submitted applications of whom 213 were admitted and 113 accepted, constituting a little over ten percent of the entering class. The number of students from non-black minority groups has also increased so that the class of 1976 includes 22 Latinos, 14 Chicanos, five native Americans and 27 orientals.

It is now widely recognized that conventional measures may fail to give any real indication of the capacity and aptitudes of students who, like many blacks and members of other minority groups, are graduates of high schools of less than the first rank. A considerable number of such students who have received modest scores on college entrance examinations and similar tests have subsequently exhibited a remarkable capacity for sustained growth. Thus, although the proportion of minority students who receive admissions ratings in the upper two groups is comparatively small their number continues to grow. As the national pool of highly qualified black high school graduates increases we have every reason to believe that many will select Princeton.

The commitment to minority students has entailed, of course, financial outlays of a considerable kind in the form of student aid and the development of special advising and counselling services, including tutoring in order to help underprepared students. For example, there are at present over three-hundred black students in the University and approximately one-third of these are members of families classified by the Federal Government as "financially disadvantaged" (a total family income not exceeding $7500 a year). The remainder come from a variety of backgrounds but by far the largest number are from families in the $8000-12,000 income category. The average financial aid for students classified as economically disadvantaged is approximately $3100 per year; the average for black students is approximately $2900. These figures suggest the extent to which black students are included among those who are economically disadvantaged.

Successive reports by the Dean of the College show a willingness to enroll promising students with modest or weak secondary school preparation but with very high motivation and potential for growth in spite of College Board scores in the 400's and 500's. The College has deliberately not developed a transitional year program nor special programs for such students. Instead a special Summer Orientation Program preceding the freshman year has been developed and strengthened academic advising has been made available including the funding of a free tutorial program in all major subjects. Thus, students who may need special help are from the beginning given extra support and thus far this approach seems to have been reasonably effective. *Nonetheless, this is an area of real concern and the Commission endorses the current efforts of the Dean of the College to review the adequacy of the University's supportive services for students with weak academic preparation particularly in linguistic, quantitative, and analytical skills.*

During the same interval that Princeton was transformed from a virtually all-white institution to a more representative and diverse community the advent of coeducation likewise brought new vitality and strength to the campus. The decision to admit women was not announced until mid-April 1969 but despite the fact that the announcement came so late in the Spring, 505 applicants sought admission for the following academic year and 135 were admitted and 102 were enrolled. (Table 2.11) The full impact of coeducation did not become manifest until the admissions season of 1969-70 when the number of total completed applications from both men and women exceeded the previous year by about 2300, an increase of almost 38 percent, the largest such single year increment in the history of the University. While much of this extraordinary change was, of course, accounted for by the fact that applications from women quadrupled, male applications also rose sharply by 745 or 13 percent, suggesting rather clearly the greater attractiveness of a coeducational university to many prospective applicants.

The effect on the quality of the student body is indicated by the number of candidates identified as of Group I quality which doubled from about 500 to over 1000 men and women, approximately the size of an entire entering class. From 1970-1972 the number of women's applications rose from about 2055 to 2365 and the proportion of applicants admitted increased from 14 percent to 21 percent. Since about three-fifths of the admitted women chose to accept Princeton's offer the number finally enrolled in the entering class increased from 178 in 1970 to 303 in 1972. Women comprise about 28 percent of the most recent freshman class.

The experiences of blacks and women at Princeton where both are minorities is affected by the obligation that many feel to make self-conscious choices among the traditional alternatives of assimilationism, separatism, and pluralism.

In the early stages of the civil rights movement the struggle for emancipation led psychologically if not logically to the assimilationist contention that to call a person a black did not add to our knowledge of him. Except for superficial physical traits the impression of black-white differences was felt to be an illusion fostered by disparate representation in the various strata of the class structure. Consequently, it behooved decent people, both black and white, to be "color blind" as if the term "black" lacked all descriptive utility and to recognize differences was indiscretion. In the name of "full citizenship" blacks were asked and often volunteered to become invisible men.

The emergence of black nationalism was the predictable counter-reaction of a people who wished to reclaim its identity. Black nationalism in its various forms exhibits the kinds of cultural emphases made by other minority groups in the United States including their ethnocentrism. According to nationalist doctrine to be black is to belong not only to a race but to a culture which because it has been developed by a people degraded yet ennobled by suffering is more spontaneous, free, and compassionate—that is to say, superior to white America—in its life styles and its art. The separatist revival is among other things one symbol of the black's discovery of his distinctiveness and self-worth and signifies the fact that many minority persons prefer a negotiated peace to amalgamation.

The doctrine of cultural pluralism furnishes an alternative to amalgamation or black separatism. As the freedom and opportunities of blacks expand, individuals and groups may prefer to define a middle way between extreme positions. The assimilationist says that he is an American and not a black; the separatist says that he is a black and not an American. The cultural pluralist insists that he is a black and, therefore, different; but also an American and, therefore, part of a whole; and that he wishes to be both.

The special problem of defining self and group identity is no less complex for women than for members of other "minorities." Women, too, must decide in what sense they share a common fate with part or all of humankind. In a perceptive essay Professor Ann Douglas Wood suggests that " 'feminism' in its best and truest sense is simply 'humanism' in its fullest and deepest significance."[6] She means by this that humanity is impoverished to the degree that it fails to honor the perspectives of all its members and that by insisting on both the resemblances and differences between men and women we can be more open to broader human possibilities. In asserting women's distinctive contributions, Wood writes:

> American women are no better than American men, but they have been automatically disqualified from certain kinds of power—power connected with technology, with specialization and professionalization. What women should have to offer is a healthy distrust of the status quo and modus operandi of male-dominated institutions. Surely they have less vested interest in defending present practices if only because they had a smaller part in forming them. In 1889 Dr. Elizabeth Blackwell, popularly known as the first woman doctor in Amer-

ica, told a group of women medical students to exercise a "mild skepticism" towards their male teachers, and explained: "Methods and conclusions formed by one half the race only must necessarily require revision as the other half of humanity rises into conscious responsibility." This revision is, I hope, the meaning of the impact "women's liberation" will have on higher education.[7]

It would be presumptuous and, in any case, futile for the University to specify how women and cultural minorities should view themselves and how they should define their relationship to others. However, it can provide students with relevant experiences to guide their choice. Paradoxically, even those who ultimately arrive at assimilationist or separatist solutions may be more confident about their decision if they accept pluralism as a method of discovery. Ethnic minorities and women who do not participate in their respective sub-communities will learn less than they might about themselves. Conversely, if they do not participate in the life of the total community, they may forfeit the chance to develop a richer and more complex view of people who are very different from themselves. By the same token, those who constitute the "majority" or dominant culture group at any given time equally run the risk of impoverishing their own education if they remain aloof from learning more from minority groups.

In the last analysis, the special problems of women and minority students must be resolved in the broader society; the University did not create them nor will they yield to unilateral responses. At the same time, much can be accomplished on our own campus. Princeton would be a more rewarding experience for more women and minority students if they could approach more adults of their own sex or culture for guidance and support. The need for "role models"—administrators and faculty who students can respect and emulate—is no less urgent because the term has become so familiar. Since for historical reasons proportionately fewer members of minorities and women have pursued academic careers it has been less difficult thus far to locate administrators than professors. However, as more women, blacks, and other minorities complete their doctorates, the number of capable scholars from these groups will increase and the effort to identify them should proceed with undiminished vigor. The discovery and recruitment of such persons should not be conceived as a matter of retroactive justice but rather as sound educational policy. As recent experience at Princeton testifies, there is no conflict between minority status or gender on the one hand, and the highest levels of academic and administrative proficiency on the other. In due course, as the number of women and minority scholars increase, no special effort will be required to locate them. Meanwhile, universalistic standards are served rather than violated when appointments are made only after we have assured ourselves that we have considered all of the candidates who are eligible for the position, including those who come from groups that in the past were often overlooked. Therefore, in the light of the factors just described, the Commission recommends *that the University should continue and intensify its efforts to identify qualified members of minority groups and women as prospective administrators and faculty.*

Elements of Homogeneity

Despite the increasing diversity of the student population, it is homogeneous in some important respects. There are striking similarities in socio-economic status as one might expect in a private university with high tuition, fees, and costs—even though approximately one-half of the student body receives financial aid and more than ten percent come from economically disadvantaged families (under $7,500). Socio-economic status is highly correlated with academic success at every stage from Sesame Street to the doctorate. There is a substantial association between family income, measured intelligence, high school grades, and admission to college, particularly at quality institutions. At Princeton, for example, more than one-half of the class of 1975 came from families with parental incomes of over $20,000 a year. Only about seven percent who responded to the American Council of Education Survey reported their father's occupation as skilled, semi-skilled, or unskilled workers while the remainder were largely concentrated in business and the professions. About three-fourths of all fathers of freshmen and one-half of their mothers have earned an undergraduate or graduate degree. It is perhaps of some interest that despite or possibly because of their relative affluence 80 percent of the respondents to the ACE survey described themselves as "liberal" or "middle-of-the-road." Although the intellectual life of the community might benefit from the presence of stronger radical and conservative counter-weights to the prevailing liberal consensus among students it would, of course, be abhorrent to the spirit of a free university to apply any sort of ideological criterion in the admissions process.

There is no subject that has more absorbed the attention of the University Priorities Committee in recent years than the issue of how to continue to make Princeton accessible to low and middle-income groups. As the Provost has recently indicated, with the rise in annual costs, "you might expect that middle-income groups are now being squeezed out to the point when only the very rich or the very poor with financial aid will be able to come to Princeton. [But] . . . the tuition increases have been comparable to the national rise in median family income. The perceived costs have risen but the real dollar costs have stayed the same."[8]

Because of the common belief that the ever-increasing cost of attending Princeton might limit its ability to attract qualified students from diverse socio-economic backgrounds, the Commission supported a major investigation to determine the effects of financial considerations on the college choices of academically gifted students.[9] This effort included two separate studies, the first concerning the attractiveness of high-cost private institutions as compared to the best state universities, and the second, concerning the relationship of family finances to the college choices of students. As part of the institutional study admissions data were collected for the years 1967-1971—the numbers of students who applied, were admitted, and actually enrolled during each year—from about 50 colleges and universities, including some of the most prestigious and selective public and private institutions in the nation. The purpose of compiling information from so many schools was to smooth out the effects of circumstances peculiar to a particular institution (such as Princeton's decision to become coeducational in 1970). It would thus be possible to perceive more clearly general trends in application and enrollment behavior.

The institutions were classified in three groups: (1) the most prestigious and selective private colleges and universities; (2) less prestigious private schools with roughly the same student charges and thus presumably more vulnerable to competition from public institutions; and (3) high quality state institutions. The analysis failed to reveal any decline in applications in the private as compared to the public sector. The number of male applicants actually increased at a greater rate at both classes of private institutions than at the state universities and although the number of female applicants decreased at the best private colleges, the reason for this decline is probably an artifact of the high representation of the top women's colleges in the most selective category. These women's institutions have recently faced increasing competition from coeducational schools, especially those such as Princeton, Yale and Williams which have only recently admitted women. The growth pattern in applications to the less prestigious schools was roughly similar to the rise in public institutions. Although applications to state universities increased at a slightly higher rate, the differences are fairly small.

The yield on admissions was stable in state universities over the five-year period but declined from five to ten percentage points in both categories of private institutions. However, since further analysis indicates that the percentage of students who declined an offer of admission at each of the private schools in order to attend a public college or university remained relatively constant during this period, it would appear that the loss in yield is a function of competition from all classes of schools, private as well as public.

The second study dealing with family finances and college choice was based on a survey of a national sample of about 1600 students who were high school seniors in 1970-71 and who had achieved a combined SAT Mathematics and Verbal score of at least 1100. Interviews with the parents of students elicited detailed data on a variety of demographic variables and on family income and assets. Parents also furnished information as to the institutions to which the student had applied, had been admitted and was enrolling.

A number of models were subsequently developed from the resulting data, the most interesting of which described the application decision as a function of a student's academic ability and family income and the institution's quality and cost. A series of multiple regressions showed that the major determinants of the application decision are the student's academic ability (as measured by his SAT score) and the quality of the school (median SAT score). Financial considerations on the other hand play a relatively minor role. The implications of these results for schools such as Princeton is fairly clear: the rising cost of attending such universities is not likely to discourage good students from applying. So long as Princeton maintains its high academic standing, reasonable increases in tuition and other costs should not significantly affect the size and quality of the applicant pool.

A second model was developed in order to consider in greater detail the attractiveness of select private colleges for potential applicants. The analysis of this model which expressed the probability that a student would apply to one of these select private institutions as a function of a variety of characteristics also suggests that the decision to apply depends only slightly on financial considerations. Indeed, a $10,000 rise in family income would result in an increase of less than four percentage points in the probability of applying. The same increase is manifest when the student's combined SAT score increases by less than thirty points. Thus academic ability seems to be a much more important factor than economic considerations.

These interpretations are subject to several *caveats*. The correlation between socioeconomic status and academic performance is substantial and the students represented in this study are as a group better able to sustain high tuition and other costs. Even for this group there is presumably a point beyond which finances could become decisive if college costs should continue their inexorable climb. It is nevertheless comforting that the best data available indicates that we have not yet reached, and may possibly never reach this threshold.

Meanwhile, the growth of Princeton's dollar commitment to financial aid has been extraordinary. In the early to middle 1960's the undergraduate aid budget was consistently between $1,000,000 and $2,-

000,000; in the academic year 1973-74 scholarship dollars alone will reach $3,726,000 and all forms of aid including loans and jobs will exceed $8,000,000. As indicated earlier, over one-half of all undergraduates receive some type of assistance, a record that will probably need to be maintained despite increasing financial burdens and constraints if the University is to continue to serve a heterogeneous population.

UNDERGRADUATE LIFE

The freshman, newly arrived on campus, is introduced into a community which like every strange, unfamiliar environment requires novel patterns of adaptation. Princeton has been so successful in maintaining the spirit of a small community that it is sometimes difficult to remember that the day-time population of the University exceeds 9000 people; that the physical plant encompasses 150 buildings and some 2300 acres of land. In 1972 the University had a $37 million payroll; spent $4.3 million in the local area for goods and services; and purchased 200,000 each of oranges, apples and bananas; and bought 138,000 light bulbs and 55,000 fluorescent tubes. Although these statistics do not hint at a cosmopolis that rivals New York City or even Levittown, neither is Princeton a village. The neophyte must not only learn the ways of professors, deans, and secretaries as best he can but he must arrange for bed and board, develop new friendships, choose to ignore or embrace a variety of extra-curricular activities, and otherwise respond to the environment.

The totality of successive adaptations to the community as a student proceeds through his undergraduate career may not only determine whether he finds his life outside the classroom rewarding or punitive but they may also have a profound influence on developmental processes and personal and social values. The patterns of behavior, thought, and values which are permitted, preferred, proscribed or prescribed by the student culture may be accepted or rejected. In either case they provide a standard which is salient in "arriving at a meaningful philosophy of life," a goal which high school seniors endorse more frequently than any other as an "essential" or "very important" component of a college education.[10]

We do know that there is no shortage of dialogue among students about the sacred and profane aspects of their daily lives. More than two-thirds of the respondents to the Undergraduate Survey report that on an average day they spent two hours or more in "bull sessions" with fellow students. (Table 2.12) This torrent of words is constant across all classes, except for a slight decline in the final year when some seniors are presumably closeted in their study carrels. It is not recorded that these conversations are wholly devoted to lofty exchanges on art, metaphysical speculation, or political controversy but they surely enrich the process of education.

These transactions between students take place on a campus whose mood in early 1973 is often described as "apathetic," "apolitical," and "conformist." Such terms have not been applied to students since the "silent fifties" and they ring strange to anyone familiar with the events in American higher education during the previous five years. We need hardly be reminded that during the 1960's colleges and universities were often the loci of protests and disruptions. The reasons usually adduced for the "return to normality" include the diminishing intensity and ultimate formal termination of the Vietnam war, the revival of careerism as a result of a tight job market, and the exhaustion of idealism after a decade of student activism.

It is too early to make a definitive judgment as to whether the events of the recent past were a transient episode or whether the current languor is simply a lull prior to a new phase of student discontent and activism. Those familiar with the history of American education will not view the 1960's as merely aberrant. Lewis Feuer documents the existence of numerous incidents featuring student dissidents throughout the entire nineteenth century.[11] In 1833 to 1834, students at the Lane Theological Center, a Presbyterian institution in Cincinnati, organized a series of abolitionist meetings and formed a society in behalf of the freedom of slaves through non-violent Christian persuasion. When the Board of Trustees advised the seminarians that they might better occupy themselves with liberating souls rather than bodies and dissolved all associations except those that were related to the academic program, 39 of the students, nearly half of the total enrollment, resigned and subsequently seceded to Oberlin.

In the post-Civil War era there were celebrated incidents at a number of campuses. Fraternity members at Michigan were suspended because they violated a Regents' order against the establishment of secret societies. At Williams, students boycotted classes for a week in order to effect the "abolishment of marks and prizes." Harlan Stone, later Chief Justice of the United States Supreme Court, led a revolt at Amherst against the theocratic paternalism of the institution's president. Indeed, in a single decade, 1880-1890, presidents at Union, Bowdoin, and Middlebury were deposed as a result of their inability to deal with student disruptions. Feuer writes,

> At Princeton, as often elsewhere, generational protest in the late eighteenth and early nineteenth centuries took the form of adherence to atheist and deist philosophy, opposition to Christianity, and physi-

cal assaults on the university. 'It is hard for the undergraduate of today, when the tone of the College is so distinctively Christian,' wrote George Wallace in 1893, 'to realize the moral atmosphere of seventy-five years ago. French philosophy was still fashionable, and French skepticism was carefully cherished by young men as the badge of polite learning and freedom. The gay and reckless spirit which always accompanied this philosophy of life was not wanting. It was necessary to ride hard, drink deep, and fear nothing.' Even as late as 1841 there were only twelve Christians at Princeton. The students, somewhat older at this time, perpetuated a tradition of rebellion against discipline. In March 1802, they completely gutted Nassau Hall, with its library and apparatus. Nothing remained but the bare, brown walls! Then in 1807 came the "Great Rebellion." For some reasons not definitely known, a spirit of discontent which had been growing culminated in open revolt. The students barricaded, fortified, and stocked Old North, and elected two consuls who 'held sway over an elaborately organized state.' A citizens' guard was mobilized in town to defend the college. Students were expelled. At a judicial assembly, 'when this business was about to begin, one of the leaders of the association rose and gave a signal to the rest, and they rushed out of the hall with shouting and yelling.' Out of two hundred students, one hundred and twenty-five were suspended. Subsequently, nearly half were readmitted. Seven years later, in 1814, the college outbuildings were set on fire, and the Prayer Hall seriously damaged by a large bomb, an 'infernal machine.'[12]

These recollections of things past, however, should not deceive us; historical parallels may conceal as much as they reveal. The sporadic outbreaks of previous eras should not be confused with the more comprehensive critique of social structure and personal life styles that emanated from the campuses during the past years. The tactics of protest sometimes dramatized and sometimes obscured the emergence of what promises to be a long-range concern with the meaning of justice for the young, minorities, women, the poor, and the oppressed at home and abroad. The identification of so many as victims together with organized efforts to relieve their plight stimulated a new sensibility that touched all aspects of university life even among the great majority of students who were themselves not active participants in campus dramas.

Youth in the seventies, then, are heirs to a recent historical period which transformed important aspects of the national consciousness and intensified more traditional forms of generational friction. The sons have ever become the fathers and survived to reproach their children and curse the times. The emergence of industrial society, particularly its

American variant, furnishes an expanded arena for the reenactment of this ancient drama. Rapid rates of social change and the modification of traditional family patterns tend to balance the generational equation in the direction of the young. In pre-modern societies, adults can serve as exemplars of proper conduct and penalize deviant behavior because normative expectations are relatively stable, clear, and coherent. Moreover, in a static universe experience is a genuine contribution to the prediction and control of events whereas in "advanced" civilizations it may even impede the adaptation to inevitable change.

The same social influences which threaten the status of the old both liberate and injure the young. College youth in selective institutions are probably the healthiest, wealthiest, and most lovingly nurtured of all groups, perhaps the most fortunate since the beginning of recorded time. However, these undeniable gains made possible by an industrial society entail considerable costs. A substantial period of apprenticeship is required to master the complexity of contemporary social and economic organization. Adolescence is accordingly prolonged with resulting delays in assuming the burdens and privileges of full citizenship, particularly access to a career and socially-approved sexual relationships. There is thus in modern American society an inherent strain between biological maturity and social prerogatives; young people are defined as adults for some purposes but as adolescents for others. This poor synchronization between age-related roles requires constant accommodation to shifting demands of independence and powerlessness. A senior in an American college is at age 22 no longer an adolescent and not yet an adult.

The period of the sixties aggravated youth-adult tensions. A decade that began with the bright hope of the inauguration of the first President born in the twentieth century ended in wars, assassinations, racial strife, and disturbances in the inner cities, suburbia, and on the campus. There was for a time widespread doubt about the capacity of the establishment to govern, the resilience of democratic institutions, and the fundamental loyalty of a substantial sector of youth to the "American way of life."

A perceptive essay by John C. Graves '60 published in the tenth reunion yearbook of his class vividly contrasts the basic presuppositions of the fifties and the sixties.

> Above all, our class could share three crucial assumptions, all of which are rejected by the students today. In the first place, we accepted the belief that wisdom came with age and experience. The country wanted to be ruled by a wise old grandfather figure during that era, and our class supported Eisenhower as enthusiastically as anyone else in the freshman poll. (In 1968 most college papers did not even bother polling politicized students between Nixon and

Humphrey.) Secondly, we believed that the people in power, and the institutions that they served, were essentially benevolent, and responsive to rational argument and to the needs and desires of the people. Thirdly, we believed that there were no serious or urgent national problems. We might complain that the pace of change was too slow and that the country was dragging its feet, and we responded to John Kennedy when he made that claim, but no one really believed that we were moving in a wrong or dangerous direction. Problems might exist, but they didn't have to be solved immediately or demand our full attention.[13]

This decade of comparative innocence cannot be reclaimed nor can campus life styles of an earlier time. Excerpts from a study on undergraduate life at Princeton by James A. Davie and A. Paul Hare in 1951-52 will convey the flavor of the then existing student culture.[14]

The View of Intellectuals in the Early Fifties:

> When asked to describe a scholar and then an intellectual, the panel members indicated clearly the value they attached to intellectual activities. The panel members felt that scholar was a term applied to men older than themselves who devoted their lives to the pursuit of knowledge, usually in some highly specialized field. While they saw the term scholar as a vocational label, they saw the term intellectual as describing a psychic quality, a way of looking at life in general. It could be applied to anyone, regardless of age. In the words of the panel, the intellectual was variously described as "a creep," "a skinny little guy with glasses," and "a mental snob."

On Sartorial Requirements in the Early Fifties:

> One of the more obvious patterns of undergraduate behavior is the standard of dress which calls for good clothes from the waist up coupled with casualness from the waist down. Some of the details of every day dress are dirty white bucks, white wool athletic socks, grey flannel or khaki pants, black sweater with numerals or letter on back, sport coat, prep or high school letter sweater worn inside out, polo shirt or button down collar shirt, no tie, and no hat except when it rains.
>
> A student thesis on clothing reports that 78% of the men in a sample believed that there was a standard of correct dress at Princeton, with the freshmen from public schools being most conscious of the pattern and the ones who feel the strongest pressure to conform.

On Conformity in the Early Fifties:

> The psychic rewards of "belonging" are such that one finds it "un-

comfortable" to deviate too far from the ideal. Social pressures of a largely informal but yet overt nature are applied by the individual's clique to the point where he must conform in most respects to the clique's norms if he is to "belong." Since cliques are apparently loosely organized on campus and since most cliques exhibit essentially similar behavior, it makes little difference to what clique one belongs. The individual chooses his friends for similarity of interests, but other cliques are not strikingly different. However, those individuals who deviate from the main norms on campus are aware of their deviation and the only sense of "belonging" they can achieve if they are not to conform to the ideal is to clique with others who are "different than the average guy."

Thus it would seem that there are two major alternative paths of development open to the student. He can be subjected to the moulding process and be richly rewarded or he can join an "outgrouper" clique whereby his interests are not appreciably changed. In this situation he may achieve the same sense of belonging to a group, but he is simultaneously aware he does not belong to the larger group and is not sharing its rewards.

On Recreational Patterns in the Early Fifties:

For most undergraduates the mid-week recreation is more important than that of the week-end, particularly the intra-mural athletics for upperclassmen. As a result of the fact that Princeton is a male residential college with abundant athletic facilities and eating clubs located in a small isolated town, mid-week recreation for the majority is confined to four major areas within a few hundred yards of each other. Each day the undergraduate makes the rounds of club, playing field or gym, Nassau Street, and his room. The activities other than intra-murals which round out the pattern include bull sessions, club life, card playing, social drinking at the Nass, Peacock, Annex, or the King's Inn after midnight, movies, music, and reading newspapers and magazines.

The way of life described in the previous passages is not devoid of charm and even now it is available in modified form to those students who find it congenial. However, for all the virtues of male camaraderie, patrician values, and the code of the gentleman, the times are now too much with us and the student body is too diverse to support a homogeneous undergraduate culture, whatever its content. The "consciousness of kind" which once could be expressed on a community-wide basis simply because the University itself was so small and the students were so alike is now satisfied primarily by participation in a variety of subcommunities which reflect a considerable range of inclinations and lifestyles. The competing values suggested by the couplets, self and others, pluralism and centralization, localism and cosmopolitanism, particularism and universalism, pose the concrete problem of how to organize the campus so that everyone can express his own individuality and belong to a subcommunity with which he feels some sense of solidarity and intimacy, while still retaining his identification and contact with the larger whole. More specifically, since economic constraints forbid an ideal solution, the issue is how to deploy scarce personnel and funds to achieve the best mix between smaller social and dining units, and such campus-wide resources as extra-curricular activities and a central social facility.

Types and Varieties of Subcommmunities

Since the early part of this century until very recently all freshmen and sophomores took their meals in Commons and virtually all juniors and seniors joined private eating clubs. The eleven clubs still constitute the largest number of organized subcommunities at Princeton and in 1971-72 had a collective membership of 900 students out of a total student body of approximately 4000. All of the clubs are comparatively small, ranging from about 25 to 115 members, and they can provide a comfortable psychological setting and well-appointed surroundings which include such amenities as dining facilities, lounges and game rooms. Beyond these similarities the clubs are more heterogeneous than is commonly supposed. Students of both sexes may join Campus, Colonial, Dial, and Terrace without participating in the selective "Bicker" process and of the seven selective clubs (Cottage, Ivy, Tiger Inn, Cap and Gown, Charter, Tower, and Quadrangle) only the first three are still all-male.

The clubs vary in cost and spirit from elegant establishments with services totally provided by a hired staff to comparatively modest quasi-cooperatives which are entirely managed and operated by their members. According to self-descriptions included in the *Upperclass Choice Book '75*, one is "small, well-endowed and secure" and "a social club in every sense of the word." Another "represents a large variety of involvement in the University community." Still another asserts that it "contains 100 individuals and 100 different lifestyles," while one claims only that it "will appeal to people who came to Princeton swearing never to join a club."[15]

It is an error, then, to speak of "clubs" as if they are a monolith whose separate units are indistinguishable from each other. However, as recently as six years ago the clubs were the dominant and essentially the exclusive social arrangement for juniors and seniors at Princeton. Accordingly, in 1968-69 Princeton established two new facilities as additional alternatives for those students whose social predilections were not being met under existing arrangements: Woodrow Wilson College, a residential unit, and Adlai Stevenson Hall, a non-residential social and dining complex located in two adjoining buildings previously occupied by private eating clubs. Membership in both of these facilities was from the beginning open to any student who wished to join. Together, Wilson College and Stevenson Hall can accommodate between 500 and 600 men and women. Each is staffed by a Master who is a tenured member of the faculty, by another member of the faculty who serves as Associate Master, and by two graduate students who act as Assistant Masters. The amenities in both include dining halls (Stevenson also maintains a Kosher kitchen), lounges, libraries, and other rooms, as in the case of Wilson College, for example, where space is provided for dramatic presentations.

In 1970-71 the University reopened the converted Princeton Inn as another coeducational Residential College housing approximately 450 students and a staff complement similar to that of its precursors. The Madison Society, another non-residential dining and social hall with a membership of approximately 200 students, was established in the same year. Another welcome recent addition to the life of the campus is the Third World Center where students of non-Western and Afro-American traditions can engage in cultural, intellectual, and social activities. The Center is open to all undergraduates regardless of race or ethnic background, has a membership that fluctuates between 100 and 200 students, and is housed in a renovated and refurbished building on Prospect Street. Like other University facilities its staff includes a Master, Assistant Masters, and a Faculty Fellow Program.

The Third World Center sponsors a number of activities including frequent lectures and discussions and a weekly social hour has been very successful. The building, however, has limited social space and students who wish to organize a large party or dance must compete, often unsuccessfully for scarce University facilities which can be used for these purposes. *The Commission believes that the University should take appropriate steps to make more social space available at the Third World Center by renovating the present facility or through other means.*

To recapitulate: during the past five years, Princeton has launched five major new facilities which are open to all undergraduates on a nonselective basis and which attracted in 1971-72 a combined membership of approximately 1300 students. Each of these units has a distinctive ambience and style, and they have added immeasurably to the vitality and diversity of undergraduate extra-curricular and social life. Both Princeton Inn and Wilson College, for example, have libraries of their own, space that can be used for experimental drama, film series, and musical groups. Since nearly one-third of all Princeton undergraduates are currently members of University-sponsored facilities, the Colleges and Halls now have considerable impact on the character of student life.

In 1972 about 400 undergraduates elected to remain nonaffiliated "independents" who ate either at the Student Center or in the town or cooked for themselves in dormitory kitchens. The University does not encourage off-campus residence because of the restricted housing market in Princeton, but this is an option which has been exercised by about 200 students in addition to approximately 80 married students. Thus, of 4000 students, in 1971-72 approximately 1300 ate in Commons, about 900 in private clubs, about 1200 in University-sponsored Colleges and Halls, about 420 made their own arrangements, and the remainder lived off-campus. (Table 2.13)

The transition from an older system of severely limited possibilities to the considerable range of options which now exists has, as was to be expected, been accompanied by the emergence of some problems associated with freedom of choice. Since there is considerable voluntarism in the selection of facilities some are overselected in some years and underselected in others. Beyond these administrative and financial difficulties undergraduates even now express some dissatisfaction with the quality of social life at Princeton. If we are to judge from the student evaluations completed at the end of the sophomore and senior years, substantially fewer than a third are highly satisfied with "opportunities for social life" and "facilities for social activities," although about half rate University housing and dining facilities as "good" or "excellent." The proportion of sophomores who give favorable ratings to all of these items tend to be even lower. To some extent, the non-urban environment of Princeton may account for some of the limitations on "opportunity." (Table 2.14) Efforts to pinpoint in detail what are the sources of dissatisfaction have not been successful. We suspect that idiosyncratic reasons, high expectations, and—until the recent opening of the Pub in the Student Center—the absence of a central place for casual festivity all contribute to the expressions of discontent.

It seems clear that whatever problems exist in the area of social life, the programs developed by Colleges and Halls have introduced an element of intellectual and artistic vitality that was heretofore less evident at Princeton. The schedule for a single semester, September-December 1971, at Princeton Inn may convey something of the range of activities which is offered by all of the University-sponsored facilities. Even this calendar fails to reveal, moreover, the extent to which it is possible in the Colleges to merge culture as a classroom experience and as a way of life. For example, the film series reflected the general seriousness of what might in another context simply be "entertainment." A student attending all of the Wednesday night films would have had occasion to see and survey the entire development of the Italian film director, M. Antonioni,

PRINCETON INN COLLEGE
Calendar of First Semester Activities
(September 1971—December 1971)

Regular Classes, Activities and Club Meetings held at Princeton Inn College this semester:

Ceramic Classes Instructor Jim Lecky—Thursdays 9:00 p.m. in the Art Studio

Chapel Discussion Group Ron White and Bob Richard—Thursdays Student Activity Room

Chamber Music Sunday afternoons 3:00 p.m. under the direction of Portia Sonnenfeld

Chess Club Wednesday—Organized by Daniel Williams Private Dining Room

Coffee House Program Group of Students ran "Snack Shop" and Entertainment

Creative Writing Workshop by Andrew Littauer

Drama Group Meir Ribalow directed the play "The Lover" assisted by P.I.C. Theatre Group

Faculty Fellow Program Students encouraged to invite any faculty member to dinner

Regular Faculty Fellow Program Thirty professors and their families were invited (Appendix I) to take meals at the Inn in order to socialize with the students. They are invited to attend all social functions, films, etc. On occasions special "wine and cheese parties" were arranged. Included in this number of faculty fellows were *Visiting* faculty fellows including Father Francis X. Murphy from Rome, Professor George Kerferd from England, Professor Lien-sheng Yang

Kiddie-Club for Faculty Children from toddlers to 10 years old —supervised by Carole Sonnenfeld, Shawn Bohen and P.I.C. student Melanie Kirkpatrick who was instrumental in organizing children in crafts, etc. (made ice cream, cookies, Christmas decorations)

Film Program Films shown every Wednesday and Sunday by Film Chairman Bob Boudreau—P.I.C. Theater (Appendix II)

Folk Dancing Sundays under the direction of Leo Arons
8:00 p.m. P.I.C. Dining Room

Language Tables Held weekly with a guest professor—Organized and supervised by Assistant Masters Jan Logan and Dave Knapton
Mondays—Russian and Chinese

Tuesdays—German
Wednesdays—Italian
Thursdays—French
6:00 p.m. P.I.C. Dining Room

Masters Sherry Parties Every Monday afternoon 5-6 p.m. For students to meet each other and converse with the Masters. There is usually an invited guest.

Resident Advisers: Section Parties RA's are encouraged to have their own individual parties.

Series of Sherry & Dinner Parties inviting Professors and P.I.C. students from Freshman Courses to meet informally:

9/30	Literature 131
10/7	Art 101
10/14	Economics 101
10/21	Psych. 101
10/28	Literature 141
11/29	Sociology 201

Tours of the Community (by automobile) Institutions, Areas, Neighborhoods directed by Beth Rom for Incoming Freshmen in September and others thru October

Yoga Classes by Ms. Barbara Waaben—Thursdays at 4:30 p.m.

Duplicate Bridge Chartered Nationally Every Thursday evening
8:00 p.m. open to all University members
P.I.C. Private Dining Room

as well as all of the films by the great Russian director, Sergei Eisenstein. These Soviet films were carefully selected to coordinate with the course in Russian Intellectual History offered by Professor James Billington and many of his students attended the Eisenstein films.

All of the Residential Colleges and Halls have sponsored lecture series, conducted seminars, and served as a locale for precepts. Indeed, Stevenson Hall has on occasion offered courses for academic credit. However, Colleges and Halls could assume a special role not now performed by the formal program if they were to occupy the territory that lies in the shadow area between a "bull session" and serious scholarship. Residentially based programs are peculiarly appropriate vehicles for creating the basis for a lifetime of continuing interest in diverse intellectual and creative pursuits. Students and faculty could organize sessions to discuss issues which fall between the crevices of the official curriculum, those areas which are not codified in organized bodies of knowledge. Residential colleges have already done much and they can do more to overcome the artificial barriers between "intellectual" and "social" life.

Problems Confronting Residential Colleges

RECRUITING AND REWARDING LEADERSHIP

The Masters, Associate Masters, and residential advisers are engaged in undergraduate teaching as important as any at Princeton and the University has thus far been fortunate in the quality of the people who have served in these positions. This is all the more remarkable since junior faculty who serve as Associate Masters are still working hard to establish themselves as scholars and teachers in their disciplines. The actual time invested as guide, organizer and counsellor almost invariably exceeds released time from teaching and may delay publication and other visible evidence of productive scholarship. Decisions on advancement reside within the Department which may be understandably reluctant to recommend an Assistant Professor to tenure primarily on the basis of his meritorious contribution to residential Colleges or Halls. There are no villains in the piece but the fact remains that both out of concern for the continuing vigor of collegiate facilities and justice to valued colleagues some remedial action may be required.

Several approaches seem possible. One can imagine recruiting young men and women of exceptional gifts outside the faculty ranks or even certain retired academics to serve as Associate Masters. While such alternatives ought not to be excluded it is improbable that the pool of those eligible to occupy these posts is excessively large. Under the circumstances the University should consider adopting policies such as delaying tenure decisions for junior faculty who serve as Associate Masters or by granting them additional terms of leave to pursue their scholarly interests. The Commission has not explored the full ramifications of employing any of these compensatory mechanisms especially since a case can be made for similar preferential treatment for other members of the faculty who perform valuable community services. Nevertheless, *we strongly urge the Deans of the Faculty and Student Affairs to take whatever steps may be required and appropriate to assure that faculty, and in particular the junior faculty, serving as Masters and Associate Masters of Colleges and Halls have adequate opportunity to demonstrate their capacity for productive scholarship and teaching in their respective disciplines.*

BOARD RATES

In 1972, annual student charges for a twenty-meal weekly contract ranged from $800 in Commons to $960 in Wilson College, Stevenson Hall, and the Kosher Kitchen. The rates at Madison, $872, and Princeton Inn, $895, occupied an intermediate place on the price spectrum. It has been suggested that these differentials are both unjust and inconsistent with sound educational policy. The reasons offered for this view may be summarized as follows:

1. The quality and variety of food served at Commons has improved markedly during the past two years and is now comparable in this respect to the dining arrangements in the Colleges and Halls.

2. Educational opportunities at Princeton, including those associated with various kinds of University-sponsored social and dining facilities should be equally accessible to all students. The decision to remain at Commons or to join a College or Hall should not be governed by economic considerations.

3. The rate structure should lend institutional support to Colleges and Halls which might otherwise ultimately experience considerable difficulty in attracting students.

These are strong arguments but they must be balanced against the following considerations:

1. Rate equalization would mean, in effect, that students who eat at Commons would be receiving fewer benefits than those in Colleges but would be paying the same board rates.

2. Assuming that the Commons board rate rose between $70 and $80 under an equalization plan it would be necessary to increase the comprehensive fee for entering students by this full sum above and beyond tuition and ordinary room-board costs. The comprehensive fee is already high, and will almost certainly rise in the future. An increase produced by equalization might place Princeton at a competitive disadvantage relative to other quality institutions and would be difficult to explain to students and their parents.

3. Equalization might result in a sharp rise in student aid. At present the University does not grant additional aid to freshmen and sophomores in Colleges and Halls even though their board rates are higher. If the Commons board rate were increased it would become necessary to raise student aid for everyone with results that are now incalculable.

In view of the uncertainties surrounding the equalization issue the Commission is unable to offer a recommendation and suggests instead that the University Priorities Committee, and the Committee on Undergraduate Life should during the academic year 1973-74 investigate the advantages and disadvantages of equalizing board rates among University dining facilities and report their findings to the Dean of Student Affairs and the Provost.

PHYSICAL FACILITIES AT PRINCETON INN

The Princeton Inn which was renovated three years ago is in need of important physical improvements. The Annex is entirely occupied by freshmen and has 40 double rooms which average 167 square feet, 13 square feet less than the minimum standard established by the Dean of Students several years ago. The freshmen attrition rate at the Inn which is high seems to be occasioned in good measure by the unsatisfactory state of the physical surroundings. If even as many as ten of these rooms were converted into singles the entire area might seem less crowded and more upperclassmen might choose to live in the Annex.

In view of these considerations the Commission recommends that the University should undertake a continuous review of the quality of the physical plant in the Colleges and Halls and should assign a high priority particularly to reducing the density of occupation in the Princeton Inn Annex.

Students Not Enrolled in Clubs, Colleges, and Halls

Although the increased diversity of the private clubs and the creation of Colleges and Halls provide a wide range of social alternatives these facilities are capable of accommodating only about 2200 students. About half of all undergraduates are thus restricted to participation in campus-wide activities and interaction on a purely informal basis with acquaintances and friends. Many, especially upperclassmen, prefer this mode of social life but such comparative isolation can create special problems for freshmen.

Entering students arrive on campus as strangers in an unfamiliar universe, are introduced to a rigorous academic regimen, and must all the while deal with the ordinary problems of late adolescence that burden many young people. These unavoidable processes of adjustment are exacerbated by a limited social environment. Most freshmen and sophomores live in entry-type dormitories in suites with several others, and their close associations may be largely restricted to this group. Except for about 350 students who are enrolled in Colleges and Halls comparatively few have ready access to lounges and other recreational space. With these conspicuous exceptions, little in the institutional structure provided for the freshman and sophomore year at Princeton expose a student to a sufficiently wide range of people, thoughts, values, and life styles. Many students contend that courses furnish relatively meager opportunities for developing sustained friendships. Moreover, freshman and sophomores are not yet affiliated with academic departments which provide a community for many upperclassmen.

Considerations such as these prompted former President Robert F. Goheen to observe in 1966 that he would like "to take the Harvard/Yale House system and turn it upside down here. That is, they have the house-and-master system for upperclassmen but I'd like to experiment with it in two or three houses for freshmen and sophomores here, so that they'd have more supervision at the beginning, and then kick them loose as upperclassmen into a freer kind of organization such as we now have. But this would cost money because we'd need to build new houses."[16]

It would seem highly desirable, then, to enroll all freshmen, instead of the current number of about 350, in a College or Hall. If, however, these subcommunities were to become enclaves exclusively inhabited by freshmen they would lose much of their educational value. Upperclassmen can serve as resident sages who can assist the untutored novice to make the most of his new opportunities. A system which segregates upper and lowerclassmen fails to exploit the full talents of students as academic and personal advisers. It is probable, however, that the proportion of freshmen and sophomores in any facility should not much exceed 50 percent if it is to remain attractive to other students. According to this guideline we would require 2200 spaces in University-sponsored subcommunities or a thousand more than are now enrolled in these facilities.

The existing deficit in the number of places could be virtually eliminated by creating two Residential Colleges in conjunction with the Commons dining areas. The Commission has discussed such a possibility. A population of 800 or 900 students could be housed in such facilities if the residents were recruited from Hamilton, Joline, Campbell, Lockhart, Foulke, Laughlin, or Brown. However, the distance of several of these dormitories from Commons would probably discourage their residents from active participation in the life of the College. Moreover, while tastes, needs, and fashions in living styles shift over time (suites versus singles, meal contracts versus cooking, peer groups versus mixed age groups) the apparent preference of many students for smaller communities should make us wary about creating new facilities on so large a scale.

Architectural limitations constitute another obstacle which would make it difficult to create two viable Colleges from Commons plus six dormitories. If the Princeton neo-Gothic dormitories had been a more exact replica of their English models with dining and common areas as part of each facility, current structures might be more adaptable for flexible use. However, in its Princeton variation the entry system seems to institutionalize small-group interaction without fostering any other kind of interpersonal experience. The attempt to create some common lounge-study-kitchen space in the basement of Holder is a desirable gesture but unlike central lobbies and corridors which the majority of residents must traverse each day out of necessity these Holder spaces are psychologically remote and therefore do not promote commonality of use. It is even less likely that residents of Hamilton, Blair or other outlying dormitories would make regular use of common areas in the present Commons dining spaces, no matter how well designed.

It might be possible to create a single Residential College by combining the populations of Holder and Hamilton Halls which are the only two dormitories which directly connect to the Commons dining areas and house only about 245 and 85 students respectively. A unit of this size, however, would be too small to permit economies of scale and, in any event, it would allow for the absorption of between only 150 and 175 freshmen. Moreover, collegiate facilities have high board rates and there is mounting evidence that students are becoming increasingly concerned about economic considerations in selecting social and dining options. As indicated earlier the disparity in annual cost between a twenty-meal contract in Commons and Wilson College, for example, was $160. This year a record number, 160 upperclassmen, chose the more inexpensive option. Now that food in Commons has improved so markedly and tuition and other costs continue to rise we may anticipate that a growing number of undergraduates may find this arrangement more attractive than other alternatives. *In view of all these considerations the Commission recommends that no additional Residential Colleges should be developed in the immediate future. However, the University should consider the feasibility of appointing a person to coordinate a program of activities for Lower Cloister where students from Hamilton, Holder, and Witherspoon Halls are assigned to eat on a regular basis.* One person with considerable energy can accomplish much. He could establish a Faculty Fellow program, provide a nucleus for a community associated with one of the dining rooms, and try to develop a program of weekend social activities. Any outlay beyond this relatively modest investment would seem unwarranted because of all the difficulties cited in previous paragraphs.

Meanwhile, the University should continue its current explorations into ways and means in which Commons could be modernized and made more attractive. While the introduction of "cafeteria style" serving has greatly improved the variety of fare the remoteness of serving lines from the central kitchen has resulted in inefficiencies and upon occasion, cold food. It would be desirable to consolidate serving lines for Upper Cloister, Madison, and Upper Eagle and to provide improved self-contained serving areas in Lower Cloister and Sub-Eagle. Moreover, the austerity of the dining halls might be overcome by introducing more intimate seating arrangements and warmer illumination. In view of existing economic and architectural constraints it does not seem feasible to undertake any other large-scale renovation in the Commons area.

Types and Varieties of Campus-Wide Resources

We have already noted the arithmetic of community affiliation in the College. Almost 50 percent of the student body dine in Commons, are independent, or live off-campus with the result that they are not regularly connected to any social facility. These groups have recourse to the Chancellor Green Student Center but this facility now lacks lounge space of any kind and is in no way comparable in its amenities to any of the private eating clubs or the Colleges and Halls. An adequate Student Center could better serve the needs of unaffiliated students and contribute to the social life of the entire community.

Princeton now justly celebrates its encouragement of personal, social, and cultural diversity but pluralism is best served when men and women with various interests, life styles, and traditions are both encouraged to develop them further and to share them with others. There is little to be gained from diversity when each group or subcommunity lives in isolation from one another. Parochialism is the enemy of education and a well-appointed central facility would stand as architectural testimony that Princeton is greater than the sum of its parts. A building that included lounges, study areas, game rooms, a mail facility, dining and snack services, a coffee house and a more authentic Pub might attract undergraduates who might otherwise not venture beyond their immediate circle. A widely utilized center would help create the spirit of common membership in the same community.

The need for a better central facility is evident even now and will become progressively more urgent as the College grows to its projected size of 4400 or more students. In the first weeks of its existence the newly established Pub attracted between 700 and 800 students to the Rotunda each week night and as many as 1200 on weekends.

It does not necessarily follow, however, that the University should construct a center *de novo*. The Chancellor Green site is at the crossroads of traffic in the most populated part of the campus and is ideally located for library, classroom, and office clientele and some dormitory constituencies. It is conceivable that more adroit use of space, relatively modest innovations, preemption of space in East Pyne, or additional expansion might obviate the need for a new building.

The discussion of possible sites for a new center is, of course, premature in the absence of any certainty that the requisite funds can be raised, prior to any precise inventory of what should be included in a suitable central facility, and without careful examination of other valid claims on the capital budget. These imponderables will not be clarified until the University has conducted thorough investigations based on a consideration of all relevant factors including the reaction of the community to various aspects of the Commission's report. *We recommend, therefore, that the University should give very serious consideration to the feasibility of renovating and expanding the Chancellor Green Student Center or constructing a new central social facility on an appropriate site.*

Extra-Curricular Activities

Campus wide extra-curricular activities are now the chief instrument for bringing various constituencies into fruitful relationships with one another. The following brief summary is instructive:

1. About 80 percent of all Princeton students engage in organized extra-curricular activities and more than half of these report that as many as three hours a day are spent in this fashion. (Table 2.15)
2. Athletics is by far the most popular form of extra-curricular activity, with over 50 percent of the students participating. Smaller but substantial constituencies are involved in organizations of widely varying types, including all manner of cultural, governmental, action, religious, and professional groups. Approximately a fourth are engaged in community service, such as working at the Youth Center or tutoring. (Table 2.16)
3. Almost four-fifths of all undergraduates expressed satisfaction with the scope of available activities and, as might be expected, of the remainder many revealed highly specialized tastes and interests. (Table 2.17)

In view of this appearance of robust vitality we have no suggestions to make about changes in the present program.

ADVISING AND COUNSELLING

ADVISING

Advising is everywhere admired in concept and its actual operation is nearly everywhere deplored. The need to furnish students with sufficient information to permit rational decisions, to assist them in evaluating alternatives, and to enforce regulations with due respect for individual differences and equity is universally acknowledged. That no system of advising ever seems quite equal to the task is partly a matter of finances and partly a function of human limitations. The ideal adviser should possess mellow wisdom, detailed knowledge of the University, a Job-like patience, an exquisite balance of distance and intimacy, a certain gift of prophecy, and a disciplined inclination to permit the student's crisis to become his own. Persons with this collection of attributes are always in short supply. For his part, the student is not always prepared to concede that he is only one among many and to distinguish between a petty annoyance and an existential tragedy.

These perennial difficulties have been much exacerbated by changes in society and on the campus during the past decade. New career opportunities, modes of learning, and life patterns have given students greater leeway to choose from among an expanded array of alternatives at a time when the authority of some established patterns has declined and the number of formal rules and regulations have been markedly reduced. Freedom and ambiguity always create some measure of anxiety and they complicate the advising process by increasing both the need for advice and the probability that it will be in error.

It is scarcely astonishing, then, that nearly every statistical index confirms considerable dissatisfaction with current arrangements. Only one-half of the students in the graduating class of 1972 who completed the senior evaluation form were willing to describe the quality of departmental advising as either "excellent" or "good," and only one-fourth of all freshmen and sophomores assign comparable ratings to the Board of Advisers, the chief advising agency for students in their underclass years. (Tables 2.18 and 2.19) On the basis of countless discussions with students we have concluded that these negative estimates are almost wholly directed to the structures and processes of the advising machinery rather than to the performance of individual advisers. Nevertheless, the basic features of the present mechanism seem superior to available alternatives including those which formerly obtained at Princeton and we are persuaded that some of the most serious flaws can be corrected, and the system markedly improved, by adopting relatively modest reforms.

Academic Advising

THE STRUCTURE OF ACADEMIC ADVISING

The responsibility for academic advising is jointly shared by the Office of the Dean of the College which has primary jurisdiction over underclassmen and by the several instructional departments and programs which assume this obligation once students have declared an area of concentration. The division of labor is not absolute: the College is responsible for authorizing special academic programs such as Independent Concentration, establishing special Pre-Law and Pre-Medical panels which may perform advising functions throughout all four years, and for assisting students who are having difficulty in maintaining satisfactory standing at any point in their undergraduate careers. Freshmen and sophomores are, of course, at liberty to consult departmental representatives in the process of deciding on a major.

The Board of Advisers which is the major instrument of underclass advising includes an Assistant Dean of the College who serves as its chairman, an administrator who is the director, and a panel of about ten faculty members most of whom are recruited from the junior ranks. A member of the Board is on duty each weekday from 9 a.m. to 5 p.m. and he may be consulted without appointment. A student is thus ordinarily assured an interview at any time that he feels the need for guidance or requires administrative authorization for special programs or deviation from ordinary academic practices. At the same time the student is not assigned to any particular adviser—indeed, he is apt to encounter a different adviser every time he drops by the Board. In this sense the Board operates as a type of "group practice."

The Board of Advisers has been augmented since 1970 by about 50 resident advisers who are appointed by the Dean of Student Affairs and include graduate and upperclass students who are assigned to dormitories and University-sponsored social and dining facilities. They are, so to speak, para-professionals since they perform guidance functions without exercising any formal authority in the academic sphere. Resident advisers can be very helpful in assisting freshmen and sophomores in selecting courses and other educational decisions as well as offering informal personal advice to underclassmen who are struggling with problems of adjustment to their studies and student life.

During the upperclass years, students not only have access to a departmental representative but also to the faculty who supervise their junior and senior independent work. Since in the normal course of events students will establish reasonably close relationships with other professors in the department we are reasonably sanguine about the availability of advice bearing on the area of concentration. It is not altogether clear to what extent departmental advisers are expected to function as general academic advisers or if they conceive of themselves as fulfilling this role. According to some student testimony some departmental representatives decline to offer advice about any aspect of the course of study which is outside departmental bounds. The choice of electives is thus sometimes determined by a student on the basis of information mainly derived from his peers and the Catalogue. This degree of laissez-faire is presumably rare and in any event upperclassmen are presumably wise in the ways of the University and reasonably clear about what they wish to learn. At some point in his collegiate career an undergraduate can no longer be thought of as educationally innocent and although the advising system should protect him against his more serious transgressions against himself, he is, by the time he reaches the upperclass years, better equipped to plan that part of his program that lies outside his departmental concentration.

ACADEMIC ADVISING: PROBLEMS AND PROPOSALS

The system of academic advising, then, has a number of notable features: (1) centralization of authority and diffusion of functions; (2) involvement of all echelons—administration, professors, graduate and undergraduate students—but with participation of only a small fraction of all faculty; (3) administrative initiative in securing guidance in academic planning; (4) relatively "professional" relationships between the individual underclassmen and a number of advisers rather than a continuing relationship between an individual student and a single member of the faculty. (However, each student in the School of Engineering is assigned to a faculty adviser with results that are said to be very successful.)

The Commission regards some of these characteristics as commendable and others as sources of concern. The system of centralized advising in which the Office of the Dean of the College has authority to interpret rules, sign cards, grant admissions to special programs, waive requirements and perform other formal functions seems to us to be necessary for achieving equity, uniform policies, effective help for students in trouble, and a flow of accurate information about University guidelines, recommendations, options, and administrative control. We are, in general, also much impressed by the contribution of students to the advising program. Resident advisers can meet underclassmen in a variety of spontaneous and natural settings over an extended period of time. Moreover, their advice on the merits of faculty and courses is not affected by loyalty to colleagues and their youth endows them with a measure of credibility that undergraduates do not always concede to persons whose empathic responses are presumed to have been weakened by time and intervening experience.

The present system of resident advising for all its merits could nevertheless be substantially improved if it made some provision for placing students into sustained contact with older adults. Since the young have only begun their progression through the seven ages of man they often have only the most rudimentary conceptions of the future. Mature adults can help young people to place their lives in larger perspective and to imagine better what they have not yet experienced. *One advantage which would follow from enrolling a larger number of "older" undergraduates who are returning to complete their education after long interruption (a possibility to which we allude on page 153) is that some of these men and women could serve as resident advisers with resulting benefits to persons situated on both sides of the generation gap.*

The Commission devoted considerable thought to the consequences of our present system in which formal advising is the collective responsibility of a Board as contrasted with a system in which individual students are assigned to individual advisers on a continuing basis. As suggested above, an underclassman who seeks advice from the present Board of Advisers on more than one occasion is likely to encounter a different member of the Board during each of his several visits. At the same time, individual students may now request an individual personal adviser, (not a member of the Board) and he will be assigned to someone from among the approximately 50 faculty members who in 1972-73 volunteered to perform this function. The College can also call on a small number of persons listed as Associates of the Board of Advisers, who are persons in the University community who are particularly competent to offer guidance to students with unusual career, intellectual, or creative interests.

The system of collective advising is perhaps less troublesome than the long period during which, in the absence of academic difficulty, an underclassman is not required to seek advice or consent for his academic program. A student who fails "to make satisfactory progress towards the degree" will be referred by the Board of Advisers to an appropriate person or agency for tutoring or other kinds of academic and personal help. These are the only circumstances under which a student is certain to come within the purview of the Board. A student in good academic standing who lacks the initiative to seek formal guidance need not consult an adviser during the entire interval between freshman orientation and the pre-registration period of the Spring semester of the sophomore year.

It is easier to identify the principal flaws of the present system than to suggest remedies. The introduction of a mandatory advising scheme in which each of the 1100 members of every entering class would be assigned a personal faculty adviser for a two-year period seems now quite beyond the limit of our resources, although some persons have suggested it and the Commission has discussed it as a possibility. At an advising load of say six students per faculty member it would be necessary to involve approximately 365 advisers. An advising program of this magnitude would entail either prohibitive expenditures for released time from teaching, a clear reduction in course offerings, or an uncompensated addition to a work load which in most departments is already very heavy. Aside from these considerations the task of coordinating the system would be truly staggering with so many people offering formal guidance, approving courses, and granting waivers it would be necessary, in order to establish any semblance of administrative order, to substitute bureaucratic regulations for the flexible process of decison-making which is now possible. Simply maintaining a flow of accurate information with such a system would be virtually impossible. Moreover, the best evidence seems to suggest that when a system of this kind was in effect a decade ago (with significantly smaller freshman classes and fewer curricular options) the advising was often extremely routine and ritualistic.

Although these difficulties do not seem capable of being surmounted there do exist modest strategies for improving advising for both under- and upperclassmen:

1. *The dissemination of published materials relating to academic planning would result in a better-informed student body and reduce the need for personal consultation.*

In the ordinary course of events, many members of the faculty, students, and resident advisers will be lavish with advice whether or not they are specifically bidden to do so. Under the circumstances, it would be well to arm them with much more information than they currently command. The College is now an extraordinarily complex organism and word-of-mouth communication which once served its members must now be supplemented by more formal devices. The most efficient way to instruct the community is through much more written material than is currently available. Therefore:

a. *The Freshman Handbook should be revived and the publication for students analogous to the recent Handbook for New Faculty should be published and periodically revised.*

b. *The course evaluation booklet which this year was prepared by the Undergraduate Assembly should if at all possible be established as a regular publication, edited and financed by the University; the logistical costs of such a project, however, need further study.*

c. *The Committee on the Course of Study should prepare a comprehensive set of guidelines for the "general education" component of the curriculum which would include the University's educational philosophy and a description of requirements.*

d. *Each instructional department should sponsor and prepare a brochure on "Concentration in . . . " which among other things would include information about the characteristics of the discipline, the features of its programs, and career opportunities in the field.*

Some of these publications would represent no more than a livelier version of the appropriate sections of the Undergraduate Announcement while others would be more expansive and detailed. If sufficient information were available to students in clear, readable, and unambiguous prose, energy that is now devoted to conveying facts and dispelling confusions could be used instead for other advising purposes.

2. *Each department should designate one of its members, either the Undergraduate Representative, or in large departments someone else, as the Underclass Adviser. Departments should also sponsor orientation sessions for students who wish more information about the departments and fields in which they might wish to concentrate.*

3. *The Board of Advisers should maintain closer and more systematic liaison with the resident advisers. Each member of the Board should be*

responsible for conducting regular "tutorials" with a small number of resident advisers and take other measures in order to assure that academic advising is accurate and reasonably uniform. Well-informed resident advisers have special opportunities for effective advising in an informal setting and in a context in which personal and academic guidance merge. In view of the strategic importance of this group it is especially urgent that they know whereof they speak.

4. *Members of the Board of Advisers should be on duty at regularly scheduled days and hours so that students who return, on successive visits can, if they wish, develop a sustained relationship with a single adviser.*

5. *A renewed effort to encourage more faculty to volunteer as "Personal Advisers," and more publicity about this feature of the advising system might encourage more students to request and receive guidance from the same person on a continuing basis.* Among other things more extensive involvement of faculty would be an instructive experience for many, and the resulting diffusion of detailed knowledge about the total operation of the College might well have salutary effects on educational policy.

THE SPECIAL CASE OF FOREIGN STUDENTS

There are currently about 300 foreign graduate students and 120 foreign undergraduates with heavy concentrations from Canada, the United Kingdom, France, India, China, Japan, and Africa. Because of language difficulties and problems of cultural adjustment, some of these students require extensive academic and personal advice. Most of these needs can be met by ordinary guidance mechanisms if the Board of Advisers, resident advisers and departmental representatives are sensitive to the greater difficulties experienced by aliens in a strange land.

Foreign students, however, require special administrative and auxiliary services which are now shared respectively for the graduate and undergraduate populations by an Assistant Dean of the Graduate School and an Assistant Registrar. The functions of the Registrar's Office are confined to helping students to maintain proper liaison with the Immigration and Naturalization Service. The Graduate Adviser also engages in this activity and in addition works with various foreign student committees both on and off campus to provide opportunities, such as practice in conversational English, hospitality from families in the community, a variety of social events, and advice on financial and travel matters. Foreign undergraduates as well as graduates could benefit from this array of services and greater coordination could be achieved if a single foreign student adviser were placed at the disposal of both groups. *Since the Graduate School sponsors a more ambitious program and less than 30* *percent of the foreign student population are undergraduates it would seem desirable to transfer the responsibility for undergraduate foreign students to the Graduate School.*

COUNSELLING SERVICES

Resident advisers can be especially valuable in referring students to other University agencies for assistance both in academic planning and in problems of personal adjustment. In 1971-72 about eight percent of all undergraduate men and nearly one-fifth of all undergraduate women made use of the Counselling Center where four full-time psychologists, two part-time psychiatrists and a psychiatric social worker offer a broad range of clinical services to the University community. (Tables 2.20 and 2.21)

Internal conflicts and lack of self-knowledge can subvert the realization of a student's potential for academic achievement and personal development. For most students, a relatively brief experience in counselling yields increased insight into the nature of their problems and often alleviates the anxiety that arises from ignorance of the sources of psychic discomfort. As part of the total advising process all concerned should be alert to the prevalence of severe unhappiness and behavior disorders, and able to detect the more obvious symptoms of distress, and aware that professional help is available.

Both faculty and advisers should resist the temptation to engage in amateurish exercises in unlicensed psychotherapy. The transactions between undergraduates and their advisers should be conducted in an atmosphere characterized by civility and warmth but nothing in the training of most faculty, let alone student advisers, has prepared them to assume the role of the clinician. The distinctions between teaching and therapy, advising and counselling, students and clients are fundamental and a layman who disregards them risks injuring those he wishes to help. At the same time all who advise should have sufficient knowledge to detect those conditions which require professional intervention. *As part of this educational process the Director of the Counselling Center, or his representative, should meet periodically with resident advisers, be available for consultation and assist them in other ways to define their functions as advisers in the non-academic sphere.*

Counselling should not be conceived exclusively as an agency of last resort which deals with disabling behavior disorders. Undergraduates are of an age and they live in times when transient sorrows and a temporary inability "to cope" should not be equated with pathology. Every effort should be made to create a climate in which students may consult a counsellor without suffering any loss of self-esteem. *In our judgment each entering class should be informed by the Director of the Counselling*

Center as early as the orientation period what psychological services are available and that these include the opportunity to obtain counsel about problems which both counsellor and student define as less than major crises.

The Director should also be invited to sit with the Committees on Undergraduate Life as well as Examinations and Standing so that he might contribute the clinician's distinctive insights to policies affecting the entire student community. Moreover, the Counselling Center would thus have a more accurate image of the range of issues and concerns which comprise the ordinary staples of life within the student community. This exchange of knowledge and experience should prove valuable in improving both the quality of student life and clinical services and would acknowledge that psychological counselling, like advising, is an integral part of the educational process.

CAREER SERVICES

About two-thirds of all Princeton graduates declare their intention to pursue further schooling beginning with the Fall following graduation while most of the remainder enter the labor market. Accordingly the University has for many years maintained a Placement Service and acted as a host for representatives from business, government, and professional schools who may wish to visit on the campus. In addition, the Office of Career Services has assisted students in obtaining summer employment some of which has had substantial educational content. Thus, each year, about 50 Princeton students participate in the Washington Summer Intern Program which allows them to work in government and related jobs and exposes them to seminars and other informal meetings with prominent men and women from many sectors of the national administration. Undergraduates are not only paid for this experience but through the generosity of some Washington alumni, students in financial difficulty are given free lodging.

The main emphasis of Career Services is, however, not placement but career counselling which has become immensely more complicated than a generation ago. Princeton students now make decisions about a world of work which includes temporary but challenging employment for undergraduate "stop-outs," vacations for social change, and increasing opportunities for "horiztonal" and "vertical" multiple careers. Although students once having committed themselves to a career may obtain information about their life work from a number of sources on campus, Career Services is the principal unit which assists them in arriving at an occupational choice. The Office maintains a reading room which includes materials on hundreds of occupations, a comprehensive set of graduate school catalogues and information on graduate-level financial aid as well as special collections of particular interest to women, minorities, and students seeking summer jobs. In addition, Career Services conducts interviews and administers tests which are designed to afford undergraduates greater insight as to the match between their own aptitudes and various kinds of vocational demands.

In 1971-72 about a third of the student body in roughly equal proportions of upper and underclassmen visited the Office of Career Services. Women were over-represented and minority groups somewhat under-represented in utilizing the services of the Office. One out of every six women as against one out of every eleven men scheduled one or more appointments during the year. Members of minority groups accounted for only eight percent of the undergraduate scheduled interview load, three percentage points less than would be expected from their representation in the student population. However, women scheduled somewhat fewer interviews with potential employers than did their male counterparts. Whether this occurred because they were less motivated to seek employment, perceived the opportunities to be inappropriate to their interests or qualifications, or were unenthusiastically received by interviewers is an issue that deserves study by the Office of Career Services and others concerned with advising women.

Some women and some members of minority groups may need particular encouragement and assistance as they consider the wisdom of entering occupations from which they were previously barred by discrimination, custom, or self-exclusion. Many women and minority persons are for different reasons often ambivalent about their increased opportunities. Traditional norms still exert a restraining force on women who prefer a career to domesticity or seek ways to reconcile these two alternatives; the "new consciousness" may coerce some women to enter the labor force even if they are inclined to accept traditional conceptions of feminine roles. Individual blacks and members of other minorities may experience conflicts between personal ambition and the desire to serve their communities and may have difficulty in locating positions in which they can be simultaneously "successful" and socially responsible. For women and minorities, then, even more than for other people the choice of a career is also a commitment to a philosophy. The burdens which result from the expansion of alternatives should in one sense be gladly borne but if new freedoms are to be used productively all who teach—faculty, administration, advisers, and counsellors—all share the obligation for helping minorities and women to decide, each in his or her own fashion, what lives they wish to lead after graduation.

The present structure of guidance services as represented by the Board of Advisers, the Counselling Center, and the Office of Career Services is admirably comprehensive. The Commission's proposals for greater cooperation between various agencies responsible for advising, more extensive use of published material, and the involvement of more advisers would lend additional strengths to the advising system. If these recommendations are adopted we believe that students who take advantage of the advising system will, even more than previously, be able to obtain the requisite academic and personal guidance to make productive use of their undergraduate years.

SUMMARY OF RECOMMENDATIONS

1. Princeton should continue its present policy of encouraging academic and non-academic excellence, a diverse student population, and a learning environment which allows undergraduates to determine their own life styles from among a variety of social options.

2. The University should adopt several additional measures to acquaint secondary school students and their families with the nature of the undergraduate program:

a. The recent effort of the Admissions Office to place prospective students and their parents in direct contact with Princeton faculty and students by means of an Orientation Day on Campus should become an annual event;

b. Whenever feasible, faculty and administrators who address regional alumni groups should arrange in cooperation with Schools Committees to meet with college-bound high school seniors and their families, and

c. The Admissions Office should also consider in what ways undergraduates might be helpful in reaching potential applicants in their home regions.

3. The number of transfer students should be maintained at least at the present level and their number should be increased if possible, contingent upon the quality of the applicant pool and the availability of dormitory space.

4. The Dean of the College should continue and intensify his review of the College's supportive services for students with weak academic preparation, particularly in linguistic, quantitative and analytic skills.

5. The University should continue and intensify its efforts to identify qualified members of minority groups and women as prospective administrators and faculty.

6. The University should take appropriate steps to make more social space available to members at the Third World Center by renovating the present facility or through other means.

7. Princeton should continue to give generous support to University-sponsored social and dining facilities. In order to provide for the continued flow of leadership for Colleges and Halls and in the interest of

equity the Deans of the Faculty and Student Affairs are urged to take whatever steps may be required and appropriate to assure that faculty, and in particular the junior faculty, serving as Masters and Associate Masters of Colleges and Halls have adequate opportunity to demonstrate their capacity for productive scholarship and teaching in their respective disciplines.

8. The Committee on Undergraduate Life and the Priorities Committee should, during the academic year 1973-74, investigate the advantages and disadvantages of equalizing board rates among University dining facilities and report their findings to the Dean of Student Affairs and the Provost.

9. The University should undertake a continuous review of the quality of the physical plant in the Colleges and Halls and should assign a high priority particularly to reducing the density of occupation in the Princeton Inn Annex.

10. In view of existing economic and architectural constraints, no additional Residential Colleges should be created in the immediate future. The University should, however, consider the feasibility of appointing a person to coordinate a program of activities for Lower Cloister where students from Hamilton, Holder, and Witherspoon Halls are assigned to eat on a regular basis; and continue its current explorations into ways and means in which Commons can be modernized and made more attractive.

11. The University should give very serious consideration to the feasibility of renovating the Chancellor Green Student Center or constructing a new central social facility on an appropriate site. Despite competing claims on the capital budget and the importance of strengthening existing Colleges and Halls, consideration of a central facility should be assigned a high priority in future planning.

12. The responsibility for formal academic advising of underclassmen, e.g. the interpretation of rules, approval of course selections, authorization to participate in special programs, assistance to students in academic difficulty shall rest in the Office of the Dean of the College, specifically the Board of Advisers and its auxiliary agencies. In the more inclusive sense of helping students to form sound habits of scholarship, to select courses and programs, to arrive at career decisions, and to develop mature personalities and humane values, advising should be widely shared by faculty and others, including resident advisers, the Counselling Center, and the Office of Career Services.

13. The College should make more extensive use of published materials as a means of disseminating information about academic planning. Therefore:

a. The Freshman Handbook should be revived and the publication for students analogous to the recent Handbook for New Faculty should be published and periodically revised.

b. The course evaluation booklet which this year was prepared by the Undergraduate Assembly should possibly be established as a regular publication, edited and financed by the University; the logistical costs of such a project, however, need further study.

c. The Committee on the Course of Study should prepare a comprehensive set of guidelines for the "general education" component of the curriculum which would include the University's educational philosophy and a description of requirements.

d. Each instructional department should sponsor and prepare a brochure on "Concentration in . . . " which among other things would include information about the characteristics of the discipline, the features of its programs and career opportunities in the field.

14. Each instructional department should designate one of its members, either the Undergraduate Representative, or in large departments someone else as the Underclass Adviser. The departments should also sponsor orientation sessions which would enable students to choose an area of study with a more secure knowledge about its domain.

15. The Board of Advisers should adopt the following changes in its policies and procedures.

a. The Board should maintain closer and more systematic liaison with the resident advisers. Each member of the Board should be responsible for conducting regular "tutorials" with a small number of resident advisers and take other measures in order to assure that academic advising is accurate and reasonably uniform.

b. Members of the Board should be on duty at regularly scheduled days and hours so that students who return on successive visits can, if they wish, develop a sustained relationship with a single adviser.

16. A renewed effort should be made to encourage more faculty to volunteer as "Personal Advisers" and to publicize this feature of the advising system.

17. The Counselling Center should be regarded as an educational resource and its director or his representative should

a. participate in Freshman Orientation

b. be invited to sit with the Committees on Undergraduate Life and Examinations and Standing, and

c. meet periodically with resident advisers, be available for consultation, and assist them in other ways to define their functions as advisers in the non-academic sphere.

18. The responsibility for furnishing special administrative and auxiliary services for foreign undergraduate and graduate students which is now shared by the office of the Registrar and the Graduate School

should be transferred to a single Foreign Student Adviser. Since the Graduate School sponsors a more ambitious program and foreign graduate students vastly outnumber their undergraduate counterparts it would seem desirable to transfer the responsibility for undergraduate students to the Graduate School.

CONTENTS

INTRODUCTION

I. HISTORY: THE PROBLEM TO DATE

II. ISSUES

- *A. Quotas*
  - 1. ADVANTAGES
  - 2. DISADVANTAGES
- *B. Size—General Considerations*
- *C. Composition and Admission*

III. MODELS

- *A. Consequences for Composition of a Policy of Equal Access*
- *B. Economic Consequences of Each Model*
  - 1. CONSEQUENCES FOR THE OPERATING BUDGET
  - 2. SURVEY OF CAPITAL NEEDS
  - 3. SUMMARY
- *C. Advantages and Disadvantages of Each Model*
  - 1. MODELS 1A AND 1B
  - 2. MODEL 2A
  - 3. MODEL 2B
  - 4. MODEL 3A
  - 5. MODEL 3B
  - 6. MODELS 4A AND 4B

IV. CONCLUSIONS

- *A. A First Approximation*
- *B. Intermediate Options—An Improvement*
- *C. Recommendation*

CHAPTER 3

The Size of the College, Coeducation and the Composition of the Student Body*

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* The recommendations in this chapter were developed by a Sub-committee of the Commission consisting of Paul Benacerraf, chairman, and Marvin Bressler, Cecelia Drewry, Jerome Raymond, Neil Rudenstine, William Schowalter, and Ellen Zufall. Professor Benacerraf is the author of this chapter and is responsible for the analysis. James Mnookin of the Commission staff, Linda Morse, Assistant Dean of the Faculty, and Richard Spies, Associate Provost developed the material presented in Appendices 1 and 2.

INTRODUCTION

How large should the Undergraduate College be? What kinds of students should compose it and how should they be chosen? These are the questions that constitute the subject of this section of our Report. They are among the most central and crucial issues that we face; for

1. almost nothing has a greater impact on the education of students than the intellectual and human environment within which they receive their education, and a central determinant of that environment is precisely how many and what kinds of other students are there to shape it. We are made further aware of the importance of these questions when we realize that

2. the admission and education of students is one of the most vital and dynamic links between the University and the society as a whole—a link through which the society and the University are in constant interplay, each exerting its influence upon the other; and

3. today's students are tomorrow's alumni, upon whose loyalty the University depends and will continue to depend for all kinds of support—the financial support without which it cannot survive; the work of Schools Committees and other groups in channeling to it the most qualified applicants; the more general support provided by individual alumni as ambassadors-at-large in the society, speaking out on Princeton's behalf on those numerous occasions when the University's policies and actions need to be interpreted, publicized, or defended.

I. HISTORY: THE PROBLEM TO DATE

Four years ago Princeton decided to alter significantly the size and composition of the student body by entering substantially into the education of women. With entering classes now composed of 800 men and 300 women, we are currently in the midst of an expansion, consequent on the coeducation decision, which is expected to take us by September 1974 to an undergraduate student body of 4400, composed of approximately 3200 men and 1200 women. The series of decisions begun in the Spring of 1969 and continuing to this day constitutes by far the single most significant development affecting both the size and composition of the undergraduate College that has taken place in many years. Princeton is still in a stage of transition. It is therefore of the utmost importance that any discussion of size and composition take place within the context of the realities imposed by that simple fact, for several of the most important questions facing us take root in it. We will therefore begin our discussion with a brief review of the considerations and decisions that have taken us to the precise point where we find ourselves today.

First among these is the coeducation decision itself. All three of the considerations mentioned in the introduction above played a crucial role in that decision: In 1969 Princeton had the capacity, in terms of facilities and an excellent faculty, supporting staff, and student body to do a more than creditable job in such a venture. Second, there were clearly enormous educational benefits—in the broadest sense of "educational"—to be derived from the introduction of a significant number of women to the campus. No other single step that the University might have taken seemed likely to contribute more to the institution's ability to pursue its mission with excellence. Third, and no less important, awareness of the changing role of women within society made it increasingly plain that for Princeton to fail to include in its midst such an important part of society would be to lose the opportunity to participate fully in it. Not to admit women would mean cutting oneself off entirely from a large segment of the population most able to profit from Princeton and from which Princeton itself would derive increasing benefits as the society continued to evolve.

Surely Princeton's decision in this regard was an important symptom of its responsiveness to the needs and forces at work in the society. Some persons were critical of the lateness and relatively small scale of our initial commitment (a first-step target of 650 women), while to many others the decision constituted a dangerous step which threatened Princeton's traditional values and courted financial bankruptcy.

While it is interesting to take this opportunity to review arguments in favor of coeducation (the first coeducational entering class is about to graduate), it is particularly important to remember the substantial resistance that the idea first encountered, principally among alumni, many of whom felt that Princeton's traditional excellence was and should continue to be in the education of men. Many of those who tended to oppose coeducation felt that for Princeton to undertake the education of women as well as men might (a) seriously dilute the quality of the education for all students (if we added women students but did not make proportional increases in faculty, facilities, etc.), (b) be too costly to undertake (if we did in fact make the necessary proportional increases they might prove extraordinarily expensive), or (c) curtail significantly our contribution to the education of men (if we substituted women students for some of the men).

This resistance was a serious and important concern. Both those who favored and those who opposed coeducation shared a genuine and abiding feeling for the welfare of Princeton; further, what is more significant for our present purpose, they also shared the following fundamental twin beliefs: (1) One of Princeton's *unique* strengths—its comparative advantage over many other institutions—is that it combines the diversity and academic power of a major university with the warmth, intimacy, and close personal relations that are characteristic of a small college, and (2) it would be ruinous to surrender these qualities. Much of the debate about coeducation therefore, centered on whether (as the Patterson Committee argued), one could not achieve both goals simultaneously—enter into the education of women, and do so without severely compromising what is valuable about the scale and character of the University.

The Patterson Committee accepted President Goheen's recommendation that Princeton retain its traditional role in the education of men by maintaining the male population of the College at approximately 3200. In addition, the College was urged to add a minimum of 1000 women, since to add fewer, in the opinion of those with experience of coeducational institutions, would be to leave the women comparatively isolated in the College, with too few of them to form a "critical mass."[1] Next the Committee argued that at least 1000 women could be added without diluting the quality of a Princeton education for anyone (both the precept system and Princeton's enormously costly, but valuable, system of supervised independent work for all could be retained) and without adding proportionally to University expenditures, thereby creating a huge deficit. Finally, a student body of at least 4200, they argued, was clearly within the size limitations that might be imposed by adherence to the shared principles mentioned above. Indeed, in certain respects it would be better than the then existing 3200 since it would create the diversity in the student body needed to take fuller advantage of the educational opportunities provided by the expansion of the Graduate School and the Faculty that had already taken place by 1968.

In the Spring of 1969, the Trustees, having considered the report of the Patterson Committee, accepted the principle of coeducation and authorized a first step in that direction—tempered by some caution concerning its potential consequences. The first authorization was for an initial target of 650 women, to be reached by 1973-74. Implicit in this decision was the goal of maintaining the male enrollment in the College close to 3200—indeed, a pledge was made to the alumni and other groups that despite the decision to become coeducational, every effort would be made to maintain the number of men in each freshman class at approximately 800. Implicit also was the intention to move beyond the Phase I target, should experience bear out the expectation that it would be both desirable and feasible to do so; but it remained to be proved what the budgetary, social, and educational impact of this initial move would be. Any further moves would depend on an assessment of these results. In any event, whatever one's views about the ultimate target, it was necessary to move deliberately enough to permit orderly staging, particularly since a major unknown at that time was how the capital resources for some of the necessary changes and additions would be found: Clearly, a significant number of students of either sex could not be added to Princeton, given its setting, without making substantial expenditures on housing.

As experience with coeducation developed, it became clear that the "experiment" was proceeding very much as the Patterson Report had anticipated. To quote from "A Status Report on Planning for Coeducation at Princeton—report of a special committee at the end of the first year of coeducation at Princeton, September, 1970":

> The first year of coeducation at Princeton has served to support strongly the case for coeducation presented in the Patterson Report. There has been ample testimony from faculty and students that the presence of even a relatively small number of women undergraduates has had a decidedly beneficial impact on the quality of the educational experience and on the general life of the campus. As the report of the Director of Admissions shows in detail, the University has succeeded in attracting a large number of exceptionally well qualified women applicants. In addition, coeducation has undoubtedly contributed, along with other factors, to the increase in the number and quality of male applicants for the class of 1974; and this has occurred at a time when many comparable institutions are experiencing contrary trends. Finally, the country as a whole is in the midst of what many regard as an important expression of concern for increased educational and vocational opportunities for women. In this setting, in particular, it is surely incumbent on Princeton to do all it can to enhance educational opportunities for women interested in coming here.
>
> While the first year of coeducation at Princeton has underscored the benefits of including women undergraduates as full members of the University community, it has also underscored the special problems that exist when women are in such a small minority. (pp. 11-12)

The points to be noted, not only after the first year but in subsequent years as well, include:

- Women selected courses and departments roughly as the Patterson Report had expected.
- The impact on the operating budget was clearly as favorable as had been anticipated, and perhaps even more so. Indeed, the implementation of coeducation at a time of financial crisis for universities in general and Princeton in particular certainly played an important role in arresting the alarming sequence of growing deficits and returning in 1971-72 to a balanced budget.

· Capital expenditures did not run so high as even the Patterson Committee estimated, and the Committee's calculations had been significantly less than the original approximations of 1967-68.

· Significant educational benefits were clearly being reaped from the participation of the women students in both academic and non-academic activities; equally, the advent of women gradually changed the whole tone of campus life. The new students proved to be a varied, talented, and enormously bright group, adding much needed diversity and excellence in many areas.

· Not only had women's applications been encouraging, but applications from men themselves took a significant jump (from 5579 in 1967 to 8382 in 1970), thereby greatly enlarging the pool from which the class was to be selected. For the first time, Princeton gained access to a large body of young men who would not even consider attending an institution which was not coeducational.

· The Patterson Report had argued that it would be necessary to build up the number of women until there were at least 1000 and the male/female ratio came down at least to 3:1, and ideally ultimately even further. Only then would the University begin to reap most fully the benefits of coeducation. With a ratio greater than 3:1 (assuming 3200 men), there would not be a sufficient mass of women *either* to make their impact fully felt on the various campus activities, or to constitute a group whose members felt less like oddities than bona fide full participants in the life of the community. To quote the Patterson Report on this matter:

> Our approach has, consequently, not been a search for the "optimal" ratio from an educational point of view. Rather, we have attempted to determine the minimum number of women necessary to reap most, if not all, of the benefits of having both sexes in the student body. It is hardly necessary to stress that this minimum includes doing full justice to women as well as to men students. Our approach was based on the assumption that this educational minimum would be the only one financially feasible, at least during the initial years, and that, as experience was gained, the University might move above this "critical minimum mass" to what might then be considered an "optimal mix." (p. 72)

Unquestionably, the first three years of coeducation bore out the implied prediction that the initial Phase I ratio would prove insufficient. It provided for too few women to permit the institution to reap fully the benefits of coeducation, and it often proved a particularly difficult experience for those few. Having noted these facts, the special committee, reporting in September 1970, urged:

> "Moreover, we believe that every effort should be made to do better than the 1:5 ratio implicit in the present Phase I target as rapidly as finances permit." (p. 13)

Princeton did move faster. The table below showing the relevant statistics for the first four years of coeducation clearly indicates how fast.

TABLE 3.1*

Year	*1969-70*	*1970-71*	*1971-72*	*1972-73*
# Women	147	391	751	976
# Men**	3252	3172	3161	3106
Total	3399	3563	3912	4082
Ratio	22/1	8/1	4.2/1	3.2/1
% Men	95.7	89.0	80.8	76.1

* Source: Registrar. Figures exclude critical language and Special Students.

** The decrease in the male enrollment over these four years is attributable to four factors: (1) the classes of 1971, 1972, and 1973 had unusually large male enrollments (e.g. 852 entered in the class of 1972) which, as they were graduated, were replaced with classes with initial male enrollments of closer to 800; (2) the normal attrition; (3) a developing pattern of increased leaves of absence; and (4) the elective use of transfer *women* to replace the attrition and at the same time to improve the distribution of women over the four classes.

This confirmation of the Patterson Committee's analysis encouraged everyone concerned to accept the full force of the Patterson recommendations. Three additional developments of the utmost importance made it possible to advance beyond the initial target of 650 women without violating the Trustees' pledge to admit about 800 men into each freshman class. These were (a) the acquisition of the Princeton Inn and its conversion by September 1970 into a residential College; (b) the expansion of Princeton Inn College to take in 156 additional students in September 1971, and (c) Laurance Rockefeller's generous gift to build the Laura J. Spelman Dormitories, which will provide 220 more spaces by September 1973. Combined with some re-rating of our existing dormitory space, by September 1973 these developments will have provided enough places for an undergraduate student body of 4400 students. Following the admissions policy which produced the classes of 1975 and 1976, approximately 1200 of these 4400 would be women and 3200 would be men.

This completes the historical background which we believe is necessary for a proper appreciation of our present position and of the difficult questions which confront us as we contemplate the choices that may be open to us. What should be the University's future policy concerning the size of the College and the admission of men and women? Should we continue with a policy of fixed numbers (presently 800 men and 300 women per entering class), or should we alter it in some respects? What are the principal considerations which we must take into account? In what follows we will discuss these issues in detail and recommend a course of action which we believe to be consistent with the broad educational goals of the University, with the University's commitment to the education of women as well as its continuing commitment to the education of men, and with the desirability of maintaining the comparative advantage of Princeton's human, personal scale.

II. ISSUES

A. Quotas

The policy presently in force is designed to take us by September 1974 to a student body of about 4400 students, consisting of approximately 3200 men and 1200 women. It is the product of a very complex and interlocking set of factors, which include the following as principal ingredients:

(a) the need, particularly in these times of severe financial stress to use all of our resources to the fullest; this argues for a student body in the vicinity of 4400 students, given the numbers at present and the planned size of the faculty, as well as the extent and utilization of our physical plant;

(b) the attempt (recommended in the Patterson Report and embodied in the pledge by the President and the Trustees) to maintain entering classes of approximately 800 men, with women students being added over and above this base;

(c) the desire to improve the ratio of men to women and thus reap more fully all the benefits of coeducation;

(d) the need, since the above goals could not be met instantaneously, for careful "staging" to insure that the effects of the change could be absorbed without financial or academic damage to the institution. Students had to be added gradually (as facilities became available) and the change in the ratio of men to women had also to be managed gradually, since radical and sudden changes in that ratio could create havoc in the academic life of the institution, given the clear differences between men and women with respect to the courses and departments of concentration which they continue to elect. (Table 3.2)

Thus, the careful "staging" by which we have reached our present size and composition has required strict controls on the numbers of men and women offered admission—it has required the use of separate "quotas" of men and women for each entering class, for only through such quotas could one keep the number of men relatively fixed while adding women up to the calculated total capacity of the College for any given year. A further reason for having maintained these quotas was simply to avoid the disruption that would inevitably have occurred in many aspects of the life of the College (e.g. sudden changes in distribution of students by departments, etc.) if admissions had been based on a policy of equal access from the start. There was a very strong consensus that the best way to reach a 3200/1200 steady state, seen either as an intermediate or ultimate goal, would be by keeping the number of men approximately constant while gradually adding women until the target number was reached. This approach required the use of quotas.

But perhaps the dominant explanation for a policy of quotas, and for the relative lack of opposition to one, is simply that most people then did not perceive such quotas to be discriminatory in any pejorative sense of the term. The Patterson Report gives one the clear impression that to exercise direct control over the sex composition of the student body was thought by the Committee to be entirely natural and in no way objectionable. Such was the temper of the time. It was also the case, of course, that the central absorbing issue was whether the College should enter into the education of women at all; other matters, including the question of quotas, were simply subordinated to the fundamental decision concerning coeducation itself. Realistically speaking, in 1968 there was no chance whatever of opening up admissions to the College on a freely competitive basis and the issue simply did not arise. Hence, any difficulties concerning this matter that might have been felt in the early stages of coeducational planning passed almost unnoticed, perhaps as minor necessary disadvantages of a project whose overall benefits were overwhelming. Of equal importance, however, is the fact that societal aversion to quotas—and especially to quotas based on sex—was not as strong in the late 1960's as it has become in the early 1970's. We need not pause here to attempt to describe the factors responsible for this change in attitude, except perhaps to note that they seem to us to be deep-seated and irreversible. Whether one thinks of recent changes in state and federal law and policy, or simply of more general changes in attitude throughout the society, the concept of treating men and women equally has established itself powerfully in the past three or four years. While the amount of attention given to the issue of sex discrimination will no doubt fluctuate over time, we believe that the movement toward equality of opportunity and toward a blurring of sex roles is going to continue.

The attitudes just described were nowhere nearly as evident at the time of the writing and implementation of the Patterson Report as they are today. Many people now feel—and we share this view—that a policy of quotas by sex, however justifiably applied up to now, is intrinsically undesirable. It is clearly at odds with the important goal of equality of opportunity as applied to all applicants for admission. This in itself is a powerful argument for reconsidering the policy. If such a reconsideration indicates that the policy no longer serves an important educational purpose, then there is all the more reason to alter it.

Moreover, other factors suggest that, even were one determined to maintain such a policy, it is questionable whether the University could in fact do so for very long. First, one need only recall how narrowly the so-called "Green amendment" to the 1972 Higher Education Bill was defeated. That amendment would have provided for the withdrawal of all federal funds from any private institution that practiced discrimination by sex in the admission of students to its Undergraduate College. Section 901 of Title IX of this act *already* prohibits discrimination on the basis of sex in admissions to institutions of vocational education, professional education, graduate higher education and *public* coeducational undergraduate education. Second, arguments might be made under *present law*, in terms of the "equal protection" clause of the XIVth Amendment, that discriminatory admission policies are impermissible. The case would be complicated and it is hardly within our competence to offer a legal opinion. But these possibilities do exist and must be pointed out. Finally, all of the above is without mention of the "Equal Rights" amendment to the Constitution, which has already passed the Congress and is being considered for ratification by the state legislatures. The direction in which these arguments point is unmistakable: it is doubtful whether a policy of discrimination by sex can long survive, even if one should wish to retain it.[2]

Finally, but also of considerable importance, is the effect of such a policy on Princeton's ability to attract the most promising and best qualified women undergraduates. Princeton's image has been one of an all-male institution. A crucial factor not only in attracting women applicants but also in persuading the best among them to accept admission is likely to be the extent to which Princeton can modify that image, the extent to which it can persuade potential applicants that women undergraduates will be welcome here on an equal footing with the men—that they are not thought of as ancillary or secondary to the men. In short, our recruiting efforts will not be helped by a policy that is known to be discriminatory against women, and as time passes, it is likely that an increasing number of women will be reluctant to consider an institution that treats them as less than equal with men. The admissions policy is, of course, the first signal of institutional attitudes that the potential undergraduate encounters. It is our contention here that to many students, policies speak louder than recruiting efforts, and policies that are based on quotas will tend to discourage both those who are afraid they might not win acceptance, as well as those who feel that even if accepted they will be assigned a place on the periphery of the institution, as only incidental adjuncts to its main life.

To summarize, then: what are the advantages and disadvantages of retaining a policy of quotas?

1. ADVANTAGES

The primary advantage of a policy that maintains fixed numbers for male and female students is the degree of control which this allows the institution to exercise over academic and related planning. For example, if a policy of free competition among men and women in admission were to yield a composition[3] for the student body that is significantly out of line with one that would meet the objectives of the institution, then a policy of quotas is advantageous insofar as it allows one to redress that composition towards one more consistent with these goals.

An extreme example should make this point clear. Suppose that general qualifications for admission are equally distributed over men and women—i.e. that out of 100 men and 100 women, approximately an equal number of each would be admitted on a merit basis if no quotas were applied. Then, if for some reason the size of the applicant pools began to take a rather drastic turn, so that the applicant pool consisted of 90% men or 90% women, free competition for places would lead to a sex ratio of 9:1, something which is clearly out of line with the institution's goal of doing a successful job of coeducation. In such a case, a policy of quotas would be advantageous *to the degree that, by using it, one could bring the ratio back to one within the range of acceptable ratios* (let us suppose for the sake of illustration 1:1–3:1 to be that range). So, in our example, a policy of quotas would be advantageous to the degree that by using it one could bring the ratio from 9:1 to 3:1. Even with a policy of quotas one might not be able to remedy the situation entirely; the best one might be able to achieve might be 6:1 or 7:1, since the pool of qualified applicants might not be deep enough—it might not contain a sufficient number of qualified applicants of the underrepresented sex to make up the difference without thereby surrendering other valuable educational objectives. The value in such a case of a policy of quotas would be measured by the degree to which the institution valued a 7:1 or 6:1 ratio over a 9:1 ratio.

A similar example could be elaborated for the case where the absolute number of men or women was in jeopardy of falling below some important threshold. In such a case, however, the picture is even more complicated, since another variable enters the picture: the absolute size of the College. Simultaneously maintaining optimal minimums and a desirable balance in the ratio of men to women students under a plan of equal access could, under certain conditions, force a certain measure of expansion in the College. Under such conditions one could guarantee a minimum number of men or women students either by imposing quotas or by adjusting the size of the College. Since the size of the College ought not to fluctuate erratically, this latter option should be exercised only rarely, when there are excellent reasons to believe that changing the size of the College will resolve the problems it is meant to resolve without creating new ones in their stead (or in addition). This is a very complicated question, and one to which we must ultimately return. As the analysis presented in Appendix 1 to this chapter implies, one anticipated consequence of a policy of equal access applied to entering classes of 1100 is a slight diminution over time of the number of men in the College.

In both of the instances just described, a policy of quotas by sex could be employed to exercise direct control over both the numbers of men and women students in the College and over the ratio. The Trustees' pledge to maintain male enrollments at approximately present levels is important and could certainly be kept through the application of a policy of quotas. Yet, it might also be possible to achieve this through equal access, depending on applicant pools and on the size of the College. It should be recognized, of course, that there are limits on the degree of control one can exercise through quotas, simply because the numbers and quality of applicants of each sex act as prior determinants. But it seems reasonable to assume that quotas could continue to function as effectively as they have since 1969, when coeducation was instituted. Clearly, these past four years were ones when the policy of quotas produced definite benefits for the institution—benefits measured principally in terms of the value of the smooth transition, both educationally and financially, from an all-male College to a coeducational one.

2. DISADVANTAGES

(a) We believe that applicants for admission should not suffer discrimination on the basis of their sex. We take this to be a principle of justice and equality of opportunity, and one which is gaining favor with an increasing segment of the population. A policy of quotas violates this principle and a policy of equal access is thereby intrinsically preferable —so long as the actual consequences of such a policy do not have severe negative implications for the central mission of the University. Given the character of the current applicant pool, the present policy does not have a significant practical impact on the composition of the class—about as many women are being admitted as would be admitted if quotas were lifted. However, this is certain to change as the number of women's applications grow (see Section IIIA and Appendix 1 below for a full discussion of the likely impact on composition of lifting the quotas, or, what is the other side of the same coin, the discriminatory effect of maintaining them).

(b) Quite apart from the question of intrinsic merits, a policy of quotas is of questionable legality now, and is likely to be actually impermissible under law in the near future, either through the passage of legislation such as the "Green amendment," through the adoption of the "Equal Rights" amendment to the Constitution, or both.

(c) The retention of a policy of quotas might constitute a serious block to the effective recruitment of the best women candidates, particularly in light of Princeton's need to overcome its long-standing image as an exclusively or dominantly male institution. We have made progress in this direction, but it is of necessity slow; the maintenance of quotas that would become unfavorable to women applicants would almost certainly convey the impression that the University is not so concerned to enroll excellent women students as men. Any such perception of a discriminatory policy could have serious consequences for our efforts to attract highly qualified students and faculty of either sex.

To conclude this section on quotas, an issue we believe to be of paramount importance, it is our view that the costs and benefits for Princeton of each policy—quotas or equal access—must be carefully weighed in the light of developing facts and expectations concerning Princeton as well as American society as a whole. As already suggested, we believe that a policy of equal access is intrinsically preferable to one of quotas, and that Princeton should adopt such a policy unless it would have significant deleterious effects on the University's ability to effectively carry out its fundamental purposes. Since the probable effects of an equal access policy on the composition of the student body have yet to be defined, and since the issue of equal access is inextricably bound up with the whole complex of questions concerning the optimal size of the College, it is clearly important to try to assess these factors before trying to arrive at a final determination concerning a policy of quotas as contrasted with one of equal access.

B. Size—General Considerations

The question of an optimal or "ideal" future size for the College is an impossible one, depending as it does on a whole host of educational, social, economic, and demographic factors which we can neither control nor predict with any assurance. At best we can offer our judgment concerning what would appear to be the best size for Princeton in its present and immediately foreseeable circumstances, pointing out what we take to be the relevant parameters and how we think subsequent changes in these parameters should affect the issue. In this way, we may hope, if not to resolve the question of size, at least to clarify its determinants sufficiently to facilitate more informed decisions when more data are available. We will reserve for Section III below our discussion of specific alternative models of the College, ranging in size from 4000 to 5200 students, with varying compositions by sex, depending in each case upon one's choice of admissions policy and one's assumptions concerning the future development of the applicant pools. In the present section we will limit ourselves to a few general considerations about size which will help to expose and explain the counterbalancing pressures for and against growth to which an institution like Princeton is subject.

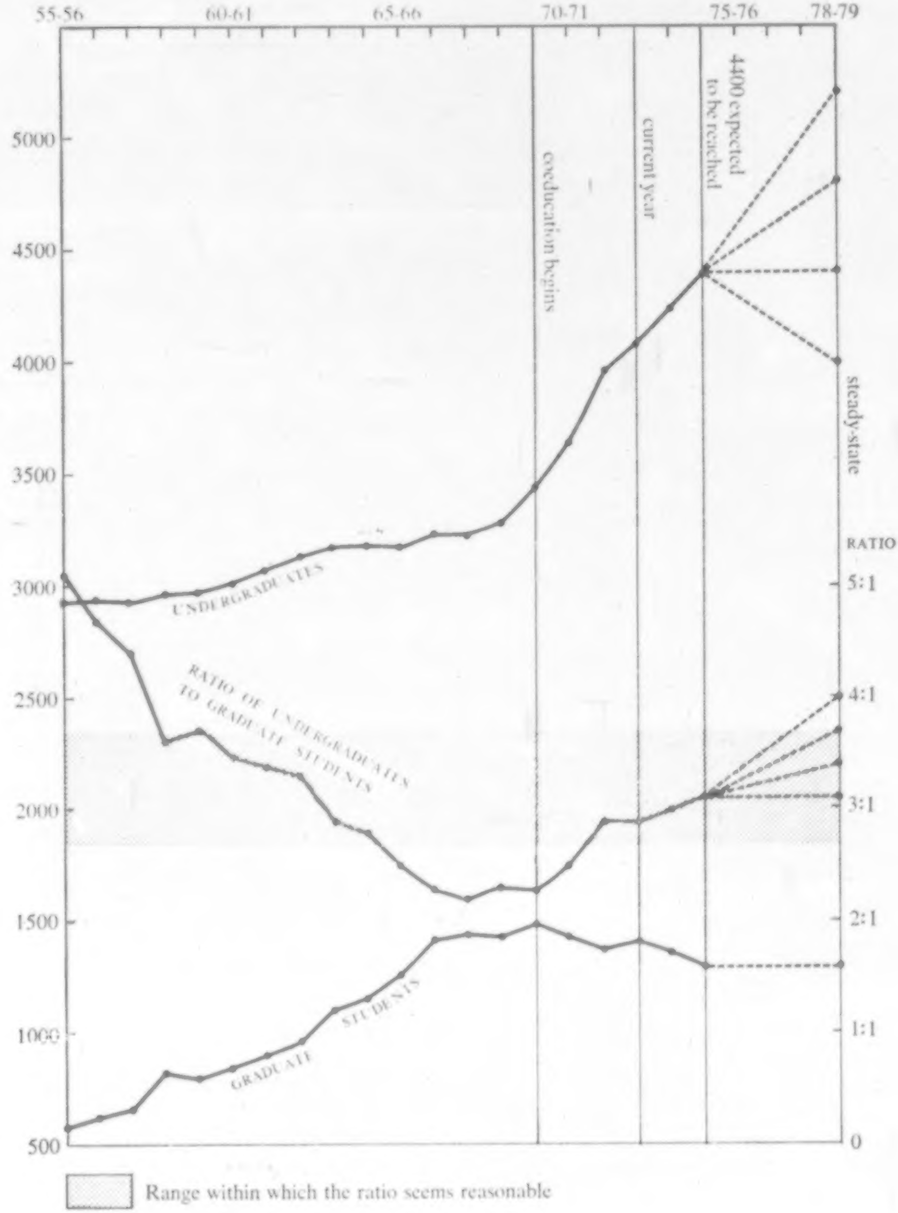
The Commission did not undertake to define an "ideal" size for the College. It recognized from the outset that different advantages and disadvantages are associated with different sizes, and that in calculating such advantages and disadvantages, the relationship between size and existing structures—physical facilities, programs, faculty resources, and teaching methods—is of crucial importance. It is plain, for example, that much of Princeton's strength as an institution derives from its comparatively small size or scale. The academic program, with its emphasis on faculty-supervised independent work and small classes or precepts, is a distinctive one, and its distinctiveness is obviously closely related to the modest size of the College. Similiarly, the residential environment of Princeton is most fully realized when students, faculty and other members of the University community have opportunities to meet and come to know one another well; it is possible to have a sense of genuine community at Princeton, and the Commission feels that it is essential for Princeton to avoid the sense of mass, with its attendant sense of anonymity and fragmentation, that characterizes a great many educational institutions. In short, the advantages of remaining a relatively small College and small University seem compelling. The nature of the academic community, the academic program, and the human community of Princeton depend heavily upon maintaining something like our present scale.

Another important reason for trying to keep any growth of the College to a minimum concerns maintaining the proper balance between the Undergraduate College and the Graduate School. It is hard to say precisely where that balance comes, but the history of the University's development over the past two decades might suggest an answer. It can be argued that Princeton's emergence as a major University coincided with the emergence of the Graduate School as a major component. For with it came also important growth and development in the Faculty. Indeed, it was argued convincingly in the Patterson Report that this growth had created a certain "overcapacity" which it was crucial to exploit, for educational and economic reasons: as of 1968, it seemed possible to add a sizeable number of undergraduate students without sacrificing the traditional quality of undergraduate education or adding proportionally to the size of the Faculty. Figure 3.1 shows the growth of the College, that of the Graduate School, and the course of the ratio of undergraduate to graduate students, beginning in 1955-56 and projected through 1978-79. Ratios are calculated for the four principal alternative sizes under discussion for the College—4000, 4400, 4800, and 5200. The ratio moved from 5.7 in 1955-56 to a low of 2.2 in 1967-68, has climbed back to 2.9 and is expected to reach 3.4 by September 1974, when the College should reach its current target size of about 4400 while the Graduate School, constrained among other things by the lack of Fellowships, gradually dips to 1300. A 3.4 ratio in 1974 would be roughly equal to that of 1961-62. Were we to add another 400 undergraduates (to 4800) the ratio would move back to its 1959 level, while the jump to 5200 would return it to 1958 levels. Without attempting to be over-precise, the experience of the last ten years does suggest that a ratio of 3.8 is too high and that to go beyond 4800 undergraduates would severely threaten this important index. Maintaining a fair balance between graduate and undergraduate teaching is important for individual faculty members and for departments; in addition, maintaining a reasonable relationship between the size of the College and that of the Graduate School is crucial, so that graduate studies and research are not dwarfed by the dimensions and demands of the Undergraduate Program.

Counterbalancing the pull toward small size, we do see some important factors that argue for at least a degree of receptivity to the idea of limited growth in the College. As fields of knowledge multiply and become more specialized, as new departments and academic programs are born, as students become interested in a broader range of activities—including things as different as computer science, soccer, ceramics, karate, film-making, and modern dance—and as the desire for quality in all of these enterprises remains not only unabated but in fact increases, a willingness and ability to let the College grow modestly at certain points in time is a crucial component of Princeton's quality as a total institution. If from time to time the institution undertakes new activities and programs, and if it is committed to doing them well, then the institution will from time to time need more people to do them. Committing the College to indefinite growth, or growth by mere accretion, is plainly a recipe for institutional chaos; but declaring an absolute moratorium on growth may be equally plainly a recipe for institutional mediocrity, at least if one believes in the mission of the University as an institution dedicated to

FIGURE 3.1

Graduate and Undergraduate Enrollments, Ratio of Undergraduate to Graduate Students 1955-1979



exploring new fields of knowledge. In addition, if the College seeks (as it most emphatically does) to enroll students who have different intellectual dispositions, different interests, different capabilities, and different social, cultural and economic backgrounds, it is important to create an environment that will allow these talents a variety of means of expression—and not only variety, but support for quality of expression as well. At the moment, for example, there are three or four vital centers for student drama at Princeton as contrasted with only one or two such centers four or five years ago; in the field of music, there is not only the Triangle Club, but also a lively Gilbert and Sullivan group, a student opera society and a number of informal musical-theatrical groups mounting productions each year. Moreover, the University Orchestra has achieved extraordinary quality, as has the Concert Band and the Glee Club, in the past two or three years. In short, music and drama in many forms are flourishing on the campus in quite new ways, at new levels of excellence, and it is obvious that the present level of activity depends to an important extent upon the recently enlarged size of the College—about 1000 more students this academic year than four years ago. In other words, simply to sustain (quite apart from creating at an excellent level of quality) a variety of different activities, the College needs assured "critical masses" of students to engage in such activities.

In summary, a complex and diverse institution committed to maintaining high levels of quality in a variety of intellectual fields and a variety of non-academic activities must be willing to balance the advantages of small scale over against the kinds of quality that depend upon diversity, multiplicity, and the vigor that comes from exploring new areas of enterprise.

After assessing these different kinds of benefits, and considering also the different disadvantages and costs implied by various alternatives, the Commission came to a preliminary conclusion which set the framework for the range of options to be given detailed consideration: It did not rule out the possibility of some modest growth in the College during the next decade, but it felt strongly that such growth ought to be very limited. In practical terms, this meant restricting detailed investigation to models of the College ranging in size from 4000 to 5200 students. The Commission's precise recommendation for the next few years will be presented in Section IV, after all of these interlocking factors of size and composition have been discussed together.

C. Composition and Admissions

We return to the question of composition, to discuss it now from another perspective: How and to what ends ought one to control the composition of the College? Because this is a question that speaks clearly to the matter of Admissions policy, we have entitled this section "Composition and Admissions." In the preceding section, we made it clear that we feel there is room—indeed need—at Princeton for students with a wide range and variety of interests, talents, and abilities, and coming from a wide range of social, economic, and cultural backgrounds. In light of this, the Commission agreed that a number of different factors could be relevant to the decision to admit any given individual. In the broadest terms, the factors that should dictate the composition of any given *class* are the abilities of the potential members of that class

(1) to benefit from the opportunities which Princeton would afford them, and

(2) contribute in turn to the enrichment of a student body with a sufficient diversity of talents and interests to insure the vigor and quality of the curricular and extra-curricular programs that constitute these opportunities.

Both of these conditions operate within the even broader but no less important concern that Princeton use its facilities in the service of the society of which it forms a part. The education of undergraduate students is a major part of the contribution Princeton makes in this regard, and the choice of *which* students it educates is surely a crucial aspect of how well it does that job.

Quite evidently, the institution's needs in any given year for different sorts of talents within the student body will fluctuate depending upon the successes of previous years and on evolving patterns in the academic and non-academic components of education. To mention but a few examples: other things being equal, there should be "sufficient numbers" of students who have talents for musical performance, or ability in intercollegiate athletics, or interests in writing, or commitment to the natural sciences—as well as enough candidates for the BSE degree to maintain the School of Engineering at a healthy and vigorous level of activity.

In many cases, "sufficient numbers" will have reference to representation in the entering class, because it is important that there be enough of a given kind of student *in each class* (e.g. BSE candidates). With other groups, the controlling factor is less the entering class, than the total campus population at any one time. In these instances the "luck of the draw" in any given year or sequence of years will affect the extent to which such considerations should have an effect on a given entering class. It is our view that these are proper kinds of demands to place on entering classes: suitably determined, they serve to preserve a crucial part of the University's ability to educate students by representing its sense of priorities concerning the kinds of students it wants to educate and those it needs as partners in that process.

Having said this much, the Commission did not feel that it could go further and contribute substantially to a discussion of the precise composition of entering classes. The reasons are simple: Its analysis suggests that these are determinations which, in the nature of the case, can be expected to fluctuate from year to year. Nevertheless, we feel it important to make two related recommendations: (1) the academic health of the institution must rank high on the list of considerations that guide the composition of entering classes and (2) the list of special categories or groups of applicants that receive special consideration should be as short as possible. The first is self evident: the University's ability to carry on all of its central functions depends above all on its academic health. The reason for the second point is that the greater the number of special constraints placed on a given entering class, the less freedom is left for the admissions officers to weigh all of the various individual factors that make up the dossier of an applicant and thus choose that individual for the peculiar excellences which he or she would bring to Princeton, but which may not have been included under the rubric of any particular special category or group in the overall design of the matrix of an entering class. This simply acknowledges that the admission of an applicant to Princeton is still and should remain a highly individualized matter, in which all of that individual's potential contributions can be allowed to play their role. Given its complexity, skillful admissions will long remain the province of the experienced and talented admissions officer. The more constraints placed on a given entering class, the less freedom is left for the process becomes, and, given our present levels of understanding of the task, the less likely it is that it will be done particularly well.

Thus, it is proper and desirable to achieve diversity in the student body by setting some special targets to be approximated by entering classes. These must be relatively few and should clearly reflect the priorities of the University. If the University chooses to continue with a policy of employing quotas to control the sex composition of entering classes, then composition by sex would simply be one such target. If the University rejects such a policy, it would declare that every applicant, regardless of sex, shall have an equal chance to qualify for each place in a class defined partly in terms of other targets. This would be the meaning of a policy of "equal access."

III. MODELS

Introductory Comments

A useful way to focus on the issues before us is to discuss them in terms of a limited number of specific alternative policies, or "models," which, taken together cover the range of options which might plausibly be open to us. The Commission has chosen to consider in explicit detail four different choices for size—4000, 4400, 4800, and 5200—and two different options for admissions policies—quotas vs. equal access. The reasons for considering these two admissions policies have been discussed at length. However, before embarking on a full scale discussion of the models themselves, it might be helpful simply to enumerate the reasons why the Commission focused on 4000, 4400, 4800, and 5200 as the ones to receive detailed discussion.

First, the range of 4000–5200, covering something below our present size, and something approximating 1000 students above it, was determined in large part by the considerations adduced in Section IIB of this report. It was suggested there that the University ought to be prepared to consider a modest measure of growth in the College during the 1970's as the price for the continuing enrichment of its program—an enrichment provided by responding on a highly selective basis to new and valuable opportunities that might present themselves. Coeducation was a dramatic example of this process, but the continuing emergence of new fields of knowledge will certainly continue to provide others. Excessive growth, however, threatens aspects of the College which we all value highly—its cohesiveness and the opportunities for close, personal, relations that it affords. Indeed some have suggested that Princeton should seriously consider contracting the College. The Commission's initial intuition was that to contract might involve serious financial problems and would threaten many of the valuable gains of recent years. Yet to expand by another 1000 students beyond current levels was itself likely to be economically difficult, if not prohibitive, and it would seriously endanger the quality of life that has traditionally been associated with Princeton. But these were initial reactions only and they served to bound the range of options that should be given detailed consideration. The ultimate choice of policy should be made only after careful and detailed analysis of each of the options within that range.

The specific models that were considered—differing as they do by integers of 400 students—were determined in part by the fact that 4400 is the current target size for the College and in part by the fact that 400 is a sensible number from the standpoint of physical planning—undergraduate living and dining facilities for 400 students make sense from an educational, social and economic point of view. While these models are clearly not the only options open to us, even within the chosen range, it is much easier to perform and present the analysis in terms of a limited number of options. Once we know where we stand with respect to these eight models—what the pulls are in favor of each—it will prove easier to refine the analysis by considering intermediate options.

Finally, in order to have a sense of the financial considerations over the entire range without performing a detailed analysis of each of the eight models, it was decided to focus attention on a comparison between models having 4400 students (3200 men and 1200 women) and ones with 4800 students (3200 men and 1600 women). This is presented in Appendix 2. Financial considerations attending the other models can then be estimated on the basis of the results presented in Appendix 2.

We now turn to a discussion of the eight models described above. In reviewing these options, one should keep in mind that present entering classes contain 800 men and 300 women; that the present size of the College is approximately 4100; and that we are in a state of transition to a projected "steady-state" of about 4400 students by September 1974.

Model 1: *4000 Undergraduate Students*
  A. Quotas
  B. Equal Access
Model 2: *4400 Undergraduate Students*
  A. Quotas
  B. Equal Access
Model 3: *4800 Undergraduate Students*
  A. Quotas
  B. Equal Access
Model 4: *5200 Undergraduate Students*
  A. Quotas
  B. Equal Access

A. Consequences for Composition of a Policy of Equal Access

Since many of the chief disadvantages of a policy of equal access relate to a consequent lack of institutional control over the composition of the student body, it is important to estimate as best one can precisely what the results of such a policy shift would be. This section of the report therefore sets out to calculate, using what we take to be a reasonable set of assumptions, the effects of an "equal access" policy on the composition of the undergraduate student body at Princeton.

In analyzing this problem, a crucial parameter to consider will be the course of development that we expect the applicant pools of men and women to follow in the next few years. This is particularly important for the "equal access" options, since under these alternatives, the composition of the student body is the direct product of (a) the relative sizes of men's and women's applicant pools, (b) the spread or distribution of talent within each group, and (c) the particular targets for achieving special institutional objectives and diversity in the entering class—targets which may (depending upon their nature) influence the proportions of men and women in the entering class.

Under present policy, the only special targets for entering classes that currently have a direct impact on the sex ratio (other than sex quotas themselves) are those relating to BSE candidates and to potential members of athletic teams, both of which groups are at present heavily male-dominated. Targets for both these groups were retained as working assumptions for the study. Any reduction in the number of places for engineers would result in making the use of engineering facilities and faculty very inefficient. The Commission concluded that, rather than reduce the number of places for engineers, the University should continue the intensive efforts presently under way to recruit more women into engineering—efforts that have already had a measure of success. Further successful recruiting will continue to lessen the impact of a target for engineers on the overall sex ratio.

The second group was retained because it is a necessary concomitant of Princeton's continuing participation in intercollegiate athletics unless (a) changes are made at the Ivy League level that lessen the need for a special target for athletes, or (b) the need is entirely met by candidates who are admissible on other grounds alone. (Interestingly enough, the better and more successful our athletic program, the larger is the pool of interested candidates, and the more likely it is that we can enroll enough excellent students with unusual ability in athletics without the need for special consideration.)

Appendix 1 contains an analysis of the effect on the sex ratio in the Undergraduate College of adopting a policy of "equal access," assuming the continuation of present policies concerning the admission of BSE candidates and students with unusual ability in athletics. The chief additional assumption of that analysis concerns the future growth of the pool of applicants. The analysis postulates annual growth rates of 1% and 5% respectively for the men's and women's applicant pools over the next five years, at which point it is expected that they will plateau, resulting in a ratio of about three male applicants for every two female applicants. This assumption—which is certainly open to question, and must be tested against actual developments—is based partly on Princeton's own recent experience with applicant pools, partly on a study of the experience of institutions similar to Princeton, and partly on an analysis of demographic trends.[4] If we assume (as has so far been the case) that quality will continue to be evenly distributed amongst men and women applicants, it is then possible to calculate the consequent compositions of the student body given different total sizes (e.g. 4000 vs. 4400 vs. 4800). The results of that study can be summarized briefly:

Under the stated assumptions, the most important of which is that men's applications will rise approximately 1% and women's by approximately 5% for each of the next five years,[5] after which both are expected to level off, it is reasonable to expect that:[6]

1. Reducing the present class size from 1100 to 1000 would take the sex composition of the entering class from the present (1972) 800/300 [72.7% male] to approximately 685/315 [68.5% male] by 1977. This is the result of Model 1B, discussed on page 106 below.

2. Maintaining the present class size of 1100 would take the sex composition of the entering class to approximately 745/355 [67.7% male] by 1977. As these estimates allow for a fluctuation of 3% either way for the men, there would, on these assumptions, be a virtual certainty each year of maintaining the number of men between 720 and 770 and the number of women between 340 and 370 per class. This is the result of Model 2B described on page 111.

3. Increasing the present class size by 100, to 1200, would lead in five years to approximately 805/395 [67.1% male]. Once more, we can expect a fluctuation of about 3% either way. The ranges are therefore 780-830 for men and 380-410 for women. This is the result of Model 3B described on page 115.

4. Increasing the present class size by 200, to 1300, would lead in five years to approximately 865/435 [66.5% male]. Once more, our expected fluctuations lead to ranges of 840-890 for men and 420-450 for women.

Thus, under the stated assumptions, variations in class size do not have a significant effect on the percentages of men and women in the College, essentially because those percentages are in turn dependent largely upon the differences in size between the men's and women's applicant pools. Clearly, if women's applications were to grow at a higher rate than we are anticipating (say, 10% per year, instead of 5%), while men's applications continued to grow at the rate of 1% annually, the result would be a greater number of women enrolled in the College.

All the models yield ratios in the vicinity of 2:1—well within the range recommended by the Patterson Committee—and as such they constitute a considerable improvement on the current ratio. The models differ principally in the absolute (rather than relative) numbers of men and women that would constitute each class under a policy of equal access. Taken another way, the analysis tells us approximately how large a College we would need in order to be relatively sure of guaranteeing any given number of men or women in each entering class under a policy of equal access. If male and female enrollments of 2750 and 1250, respectively, are sufficient, then a total of 4000 has an excellent chance of meeting that goal. If, on the other hand, one wants at least 3000 men or 1400 women, one must move to Model 2B—4400. A floor of 3200 men or 1600 women would push the College to 4800; while if 3450 men or 1750 women were thought to be desirable goals, adherence to a policy of equal access would very probably require a College numbering 5200 students.

This is one of the first elements of the puzzle which we are trying to piece together. We proceed now to a discussion of the economic consequences of each model.

B. Economic Consequences of Each Model

Each model has associated with it economic consequences of two different sorts, which we have treated separately: (1) consequences for the *operating budget* of the University of adopting that model, and (2) consequences for the *capital budget* of choosing the policy which the model in question represents (usually this translates simply into the costs associated with the construction of needed new physical facilities). The present section is divided into two parts, in the first of which we discuss matters relating to the impact on the operating budget, and in the second we survey the needs for physical plant that we might presently have as well as those that might be associated with each of the four models under consideration.

1. CONSEQUENCES FOR THE OPERATING BUDGET

The present section is devoted to a listing with relatively little discussion of the results of various analyses and certain assumptions and calculations, all of which will prove useful in the comparative evaluation of all the models which we present in Section III. As we shall see, preliminary inspection of the data suggests that the economic consequences of Models 1A, 1B, 4A, and 4B can best be discussed as variations on a more detailed analysis of the other four. The serious economic questions reside in possible differences between the two middle sizes and, to a lesser extent, between the two kinds of admissions policies contemplated within each size. We therefore concentrated our major efforts on estimating the economic differences between 4400 and 4800 students, assuming for the sake of calculation that at 4400 the mix in each class is 800/300 and at 4800 it is 800/400. The full analysis is presented in Appendix 2 and its results are summarized briefly below.

Since, as we will argue, moderate dislocations in the sex distribution (±400) at these size levels do not seem to have appreciable or immediate financial consequences, this analysis gives us a reasonable base for estimating the economic feasibility of a fairly broad range of models: particularly those ranging between our present size and composition and 4800, at a variety of compositions. We do not know very much about what lies beyond 4800, though we suspect that we cannot go much beyond it without making serious concessions in quality of services or without passing certain cost thresholds which would make the increases far from linear. Indeed, as we shall note later, we should already be a little wary of the estimates for 4800, since many of them are made during a transitional stage and without any solid operating experience in any sort of steady-state. But let us take this point not so much as part of the analysis itself but rather as a word of caution concerning how much confidence we should place in its results.

The following, then are some assumptions that we have made and conclusions that we have reached:

(a) We calculated the capital and operating costs of moving to a student body composed of 800 men and 400 women per class as the marginal cost (+ or —) of adding 400 students (400 women) to a student body composed of 3200 men and 1200 women. That estimate is presented in detail in Appendix 2, along with all the assumptions and calculations that led to it. The results are of necessity presented as a *range* rather than as a single estimate, since the actual net results themselves depend on a large number of variables which it is impossible to estimate at this time with any degree of precision. In brief, we find that within the range of probable accuracy of these estimates, the addition of 400 undergraduates beyond 4400 would contribute a net operating deficit of about $90,000 per year (the net operating result would be between +$6.6 and —$180; for the sake of convenience and ease of reference we will pick roughly the middle of the range). Where in that range it would actually fall depends largely upon such imponderables as the library acquisition requirements of the specific faculty members that would be added to take care of the additional 400 students, and on whether offices can be created for these faculty members within existing space, making due allowances for renovation. The capital expenditures associated with Models 3A and 3B (between $8 million and $9.5 million) are more serious, however, and will have to weigh heavily in the assessment of those models.

An important corollary of this analysis is that, dormitory space aside, the costs and income associated with the expansion from 4400 to 4800 are roughly linear, i.e. it costs about a third of the total to go one third of the way to 4800.

(b) Since a balanced budget is expected for 1974-75 (when we expect to reach 4400), moving from our present situation (4100+ students) to 4400 will have no net budgetary consequences.

(c) Since a new building for the life sciences has for some time been recognized as essential to the College, any costs associated with such a building should not be charged to any of the "Size and Composition" options under consideration.

(d) In general, we assume that if there is presently any significant underutilization of capacity in the University, it would prove economically advantageous to use that capacity. Here we are thinking principally of faculty and space. If there is unused dormitory space, or unused instructional space, or classes with enrollments lower than optimal, it would be to Princeton's economic advantage to use that capacity.

(e) We conclude, for reasons indicated below, that the economic and academic consequences of having a student body built of classes composed of 800 men and 300 women would not be significantly different from those that would ensue from a population consisting of classes of 700 men and 400 women: i.e. that a swing of 100 places per class between men and women does not have severe academic consequences nor does it make a significant difference to the operating or capital budgets at the level of 4400. Although there are some consequences for financial aid, the principal consequences would be on faculty staffing. Table 3.3 shows the anticipated impact on course and departmental enrollments of replacing 400 men with 400 women, assuming they are all evenly distributed among the four classes (100 seniors, 100 juniors, etc.). Since the purpose of the calculations was to see the likely effects of such a redistribution at 4400, given the commitment to the Engineering School, we assumed that none of the replaced men would be engineers. The course enrollments are for the Fall semester. The percentages are based on 1971-72 and are the ones used as the basis of the economic analysis presented in Appendix 2. A glance at the results shows that there are few changes significant enough to be expected to have an impact on faculty staffing. Art and Archaeology, Economics, English (for both courses and majors), and perhaps Mathematics and Physics (for course enrollments) are the only ones; of these, the additional majors in English and Art and Archaeology are the only changes likely to require any addition to staff. Smaller reductions might be possible elsewhere. Thus, the net financial impact of substituting 100 women for 100 men in the entering classes at a College size of 4400 is, although noticeable, not very significant. This means that if 4400 with 800/300 is a balanced budget, the budget at 4400 with 700/400 is approximately in balance as well. It means also that the consequences for the academic structure of the University (relative balance of departments, etc.) can also be expected to be minimal and well within the range of error for our projections as a whole. It will become important to remember these facts when comparing Models 2A and 2B under various assumptions about what will happen to applicant pools.

2. SURVEY OF CAPITAL NEEDS

Our present physical plant is more or less well-suited to each of the different models we are considering. What follows is a brief review of the status of important University facilities with an eye to determining the adequacy of each of the contemplated size levels.

LIFE SCIENCES BUILDING

There has been considerable pressure on laboratory space for undergraduate courses in the Life Sciences for some time now. The steady growth in the number of pre-medical students and the interest displayed in life sciences by women undergraduates has added markedly to already existing pressures. The desirability of bringing Biology and Biochemistry physically closer (they are now split between Frick and Guyot) reinforces the argument in favor of creating a single new building, and such a building has been high on the list of institutional priorities for a number of years. Since a building of this kind would be needed under all of the models being considered, the necessity of building it will not help us choose among them. Still, its presence as an unfilled need must be borne in mind, since it is therefore to some extent a *competitor* for funds with our other capital needs. It therefore renders less feasible any plan that itself has substantial capital costs associated with it.

VISUAL ARTS

There is a reasonable amount of space for Visual Arts in 185 Nassau Street, although not all of it is ideally suited to the Program's requirements. Barring improvements in the quality of space (which is again not something which distinguishes one of our models from any other), we would expect the Visual Arts to be accommodated in existing space through 4400. After that, it is felt that student interest may warrant improving and possibly enlarging the facilities devoted to Visual Arts. Hence, some charge for expansion of Visual Arts will accrue to those models with student populations significantly larger than 4400.

PERFORMING ARTS

The successful establishment of a program in the Performing Arts will ultimately require the creation of teaching, rehearsal, and performing space. In the event that such a program is adopted and successfully launched, space will definitely be needed. Since the capital expenditures associated with such a program are related primarily to the curricular decision to initiate the program, rather than an expansion of the College *per se*, such costs have not been included in the analysis of the consequences of choosing one model over another. At the same time, it ought to be recognized that any significant enlargement of the College—beyond, for example, 4800 students—adds to the probability of expansion in the Performing Arts, with a consequent need for better facilities.

FACULTY OFFICES

Existing office space is thought to be roughly adequate to accommodate the faculty needed to handle a student body of 4400. Some moves will have to take place to make more optimal use of existing space, but it appears that all that can be done without new construction. Roughly 35 new offices would be needed to accommodate a faculty associated with 4800, and some 35 to 40 more for a move to 5200. The first 35 could probably come from the conversion and renovation of existing space currently devoted to other uses. In the event this should not prove possible, an estimate has been included in Appendix 2 for the cost of new construction.

CLASSROOMS

The availability of classroom space has a good deal to do with the degree of inconvenience which faculty and students will tolerate in the scheduling of courses. A scheduling simulation run (in connection with the Patterson Report) for an undergraduate population of 4200 showed that everything (with the exception of some laboratories in Life Sciences, which we have already discussed) could be accommodated quite easily in existing space. There is little doubt, therefore, that there exists sufficient capacity at 4000, and probably at 4400, although it is difficult to estimate precisely how much, since that depends heavily on the degrees of inconvenience associated with various levels of utilization. For similar reasons, it is hard to determine whether at 4800, or 5200 we might or might not be short of certain types of classroom space.

DORMITORIES

With the Spelman Complex scheduled for occupancy in September 1973, we will have room for approximately 4400 undergraduate students. Failure to use space would clearly be wasteful, and would probably either contribute to an operating deficit or raise the prices of rooms beyond even presently projected higher rates. If one wished to expand the College from 4400 to 4800, new student housing would have to be constructed, either in the form of simple dormitory space, or along the lines of a new Residential College (i.e., including dining and social space). The advantage of the former is that it is cheaper. The advantage of the latter is (over and above its educational benefits) that a new College might alleviate what is felt to be a growing need for a new or expanded Student Center. At 5200, one would probably have to create a new Student Center in any event, regardless of what housing arrangements one chose; at 4800 or below, the question of a new Student Center is more complex and depends on the outcome of a number of decisions.

Finally, it should be mentioned here that there is some possibility of creating between 100 and 150 dormitory places beyond 4400 by a sequence of small moves over a few years, without major capital investment. The College could thus accommodate a total of some 4550 students with relatively little additional expenditure. The potential advantages of this option will be discussed in Section IV.

STUDENT CENTER

The present Student Center, from the point of view of cafeteria space, can serve a College of 4400 undergraduates, particularly if it is expanded to the basement. There is divided opinion concerning whether it would be desirable to have a new Student Center that would include space for recreational and other activities, or whether it is better to keep activities decentralized, with most events taking place in Colleges and other facilities. For present purposes, we will assume that insofar as the need exists for a new Student Center with recreational space, much of this need exists already, and is not clearly a direct component of any one of our models in contrast with the others. However, we can state that a need for additional cafeteria facilities would definitely emerge at a College population of 5200, regardless of whether any new dormitories that may have been built were Residential Colleges or simple dormitories.

LIBRARY

Capital costs for the library are needed for study space (carrels, etc.), new acquisitions, etc. (Appendix 2) These are straightforwardly proportional to the numbers of students and faculty added. Existing or planned facilities will see us through 4400, but additions would have to be made for 4800 and for 5200.

ADMINISTRATIVE OFFICES

It appears that a College of 4400 students can be administered from within existing space, though some offices might have to be moved from West College to make room for one or two additional personnel if we were to grow to 4800. It is conceivable that some slight expansion might have to take place at the 4400 level, but not likely. At 5200, additional office space would certainly be needed, not only in West College, but perhaps in the New South building as well.

On the basis of the above survey, plus the results of certain other surveys concerning our present physical and manpower capacities, it is possible to construct a schematic table, Table 3.4, comparing in a purely qualitative way the various alternatives under consideration:

TABLE 3.4

SUMMARY OF CAPITAL NEEDS

		Life Sciences Building	*Visual Arts*	*Performing Arts*	*Faculty Offices*	*Classroom Space*	*Dormitory Space*	*Student Center*	*Library Space*	*Administrative Space*
1.	4000	+	?	?	—	—	—	0	—	0
2.	4400	+	?	?	0	0/—	0	0/+	0	0
3.	4800	+	?	?	+	0	+	0/+	+	0/+
4.	5200	+	?	?	++	?	++	+	++	+

Legend: — = some extra capacity exists (or will exist by 1974) relative to the model in question
0 = can be handled within existing space, perhaps with minor renovation
+ = requires significant capital expenditures
? = cannot be determined or depends heavily on policy considerations in other areas

3. SUMMARY

In capsule form, the conclusions to be drawn from the foregoing survey of the economic consequences of these four models are as follows. Given the small difference that different compositions make within each model (see 1(e) on page 97 above), we will not distinguish the consequences of different admissions policies within each size category.

(a) *4000.* No capital costs are associated with this model that are not associated with all the others as well. On the contrary, Models 1A and 1B (a student body of 4000) would seriously underutilize existing resources: faculty offices, classroom space, library facilities, and approximately 400 dormitory places. This in turn translates into higher *per capita* operating costs and therefore a higher portion of costs not covered by tuition income. There are also some resources in the faculty and supporting staff which would go unutilized in a College of 4000. This "excess capacity" in physical plant, faculty and staff would very likely turn quickly into sizeable annual deficits, since it is unlikely that a sufficient portion of it could be eliminated—either by reduction in staff or by closing down parts of the physical plant.

(b) *4400.* As we noted above, the Spelman dormitory complex will have been completed and it is expected that the budget will remain in balance into 1974-75, when the College is expected to reach approximately 4400. Although some small measure of extra capacity in parts of the physical plant is likely to remain, it is considerably less than what attends the previous model. There is expected to be little or no usable over-capacity in the faculty. This is suggested by the need to add about as many faculty to enlarge the College to 4800 as were needed to grow from 4000 to 4400 (see Appendix 2 for the details of this calculation). The only extra capacity we find at 4400 is possibly some classroom space. No significant needs for additional space emerge at this level.

(c) *4800*. On the operating side, it appears that meeting the needs of the next 400 students past 4400 would cost slightly more than the income that would be associated with that expansion—assuming, of course, that standards of the quality of education and other services are preserved (e.g. faculty-student ratios, etc.). It is difficult to tell how much of a deficit this would contribute, but it should be less than $200,000, and very likely less than $100,000 as well. Whether compensating economies would be made elsewhere is something we have not tried to determine. What the analysis of Appendix 2 tells us, however, is that at 4400 we will have used up a very substantial portion of the capacity that permitted us to add 1200 undergraduate students since 1969 without contributing at all to the deficit—indeed that addition helped bring the operating budget into balance. We suspect that further significant additions beyond 4400 will begin to take us close to cost thresholds in many areas. We are not absolutely certain of this; we would rather make such a judgment on the basis of some experience in "steady-state" at or near 4400. This is the significance of the *caveat* we entered at the beginning of Section IIIB (pp. 95-97) concerning the degree of confidence we should place in our projections. The capital expenditures associated with these models (3A and 3B) are substantial: between $8 million and $9.5 million, depending essentially on the kind of dormitory and dining facilities that are chosen for this expansion and on whether an existing building can be found for the 35 faculty that would have to be added in order to maintain prevailing educational standards.

(d) *5200*. Although we did not make a detailed calculation, we are fairly certain that an expansion from 4400 to 5200 would carry with it an operating deficit significantly in excess of $250,000. Briefly, our reasons are (1) the faculty costs of going from 4800 to 5200 should roughly equal those of expanding by the previous 400; (2) there are likely to be significant needs for administrative staff that do not appear at 4800, (3) there would be a substantial addition to the physical plant, with its attendant maintenance costs (annually, roughly 3% of construction costs), but (4) as with the previous step, the additional income is substantially that associated with the net tuition of the 400 students (exclusive of dormitory and dining facilities). New forms of State aid presently being developed are expected to be of some help on the revenue side. As for capital expenditures, Table 3.4 indicates that we would need more faculty offices, more dormitory and dining facilities, a new Student Center or similar facility, additional library space, and more space to expand key administrative services. This clearly adds up to considerably more than twice the costs associated with Models 3A and 3B. For this reason, we did not attempt to make more precise estimates; there are so many options, each with different costs and benefits, that a detailed investigation would be worthwhile only in case it became evident that expansion of the College to 5200 students seemed clearly to be worth making capital expenditures in excess of $20-25 million. Since a preliminary look at the other features of 4A and 4B and at the other models made this unlikely, we did not pursue the matter further.

There do exist ways to expand the student body significantly while avoiding some of the capital costs just mentioned: by going from the present two-term system to some form of year-round operation. However, the effects on operating costs are far from clear. In any case, the range of choices this would open up is enormous and quite beyond the scope of this chapter of the Commission's report. Since the Commission gave some thought to such plans and decided to recommend that we retain the two-term system, for reasons discussed, that system forms the basis for discussion of all of the Size and Composition models we consider in this chapter.

C. Advantages and Disadvantages of Each Model

PRELIMINARY REMARKS: POLICY UNDER PRESENT CIRCUMSTANCES

We now have all the information necessary to begin a systematic examination of the eight models presented at the beginning of this section, with a view toward making a decision concerning the best policy alternative for Princeton *at this time*. We underscore "at this time" because a policy that makes sense at one moment, under a given set of particular circumstances, might very well not be appropriate for another.

By way of an introduction to this section, it will be helpful to review the recent history and present status of the University's implementation of coeducation. Recalling this history may assist us in assessing the University's present situation more precisely, and clarify important considerations that may bear on the decisions confronting us. We should also recall that we have so far tentatively established a number of pertinent points. First, we have seen that a policy of equal access would allow a moderate improvement in the male/female ratio if we stayed at approximately our present size. This improvement is not made significantly more favorable, however, by expansion to 4800 or 5200, although enlarging the College in this way would, of course, add to the absolute number of women on campus. Second, from a purely economic point of view, a reduction to 4000 students is seriously disadvantageous since it produces unusable excess capacity, while a growth to 5200 entails very heavy capital costs. On purely economic grounds, a College in the range of 4400-4800 is plainly preferable, at least in the foreseeable future. Keeping these points in mind, we will now turn to a discussion of the recent history of coeducation.

Making full use of the enlarged perspectives afforded by hindsight, we can discern at least three strong reasons why we were able in 1969 to enter with such confidence and dispatch into coeducation (entailing 30% expansion of the College in four years!).

First, at the writing of the Patterson Report, there was considerable evidence of the existence of "overcapacity" in parts of the University. The rapid expansion of the Graduate School (Figure 3.1 above), and the accompanying increase in the size of the faculty over the previous fifteen years, the explosive expansion of the physical plant, and the sizeable increases in the administrative services of the University—all without a corresponding expansion at the undergraduate level—suggested that we could indeed expand and, through that expansion, increase the efficiency of our operation without any significant diminution in the quality of undergraduate life and education. A detailed financial analysis made precisely such predictions, and they have been amply borne out by subsequent experience.

Second, the nature of our "overcapacity" was such as to suggest that 1000 women might take better advantage of it than could 1000 men, given the differences between men and women in their selection of academic subjects (see Table 3.2 for a summary of their differential tendencies in the choice of departments of concentration). Simulations comparing the consequences of adding 1000 men rather than 1000 women bore out this hypothesis as well.

Third, instruction and administration of the Undergraduate College had not changed significantly in many years. Therefore, our projections of the consequences of coeducation concerned changes from a well-understood steady-state (in the College) that had existed for a good many years. There was, in short, a very stable and well-tried system in being, a secure foundation from which to embark on a new and demanding enterprise filled with uncertainties.

In sharp contrast to the situation underscored by these three factors, we now find ourselves having used a considerable amount of the overcapacity already described. Indeed we have used it all, with the possible exception of some flexibility in the scheduling of classroom space. This is itself the direct product, not simply of coeducational expansion itself, but also budgetary stringency forcing an even stricter use of all facilities and manpower, including some actual cutbacks in faculty and administrative staff. As a consequence of both these factors, we may be very close to the next quantum jump in costs that will not be balanced by corresponding income.

Moreover, as Table 3.3 and Appendix 2 suggest, there are very few savings at the faculty level to be achieved by the addition of more women (rather than men). Four years ago, it was from an economic as well as an educational point of view distinctly advantageous to add women students rather than men because the course-selection patterns of women complemented (in essential ways) those of men. With respect to this particular point, however, any future expansion holds only sharply diminishing further returns.

Next, and perhaps most important for our purposes, the College has been in a state of constant and rapid change for four years, and it will continue to change over the next two, during which time we can expect to enroll an additional 260 students. Moreover, this increase will be felt at the junior and senior level, as the recently enlarged freshmen and sophomore classes advance. This means that we have not yet felt the full impact (especially on the supervising of independent work in the Humanities, Social Sciences and the Life Sciences) of the present continuous growth to 4400 students, a development which will be substantially completed by the Fall of 1974. The analysis in Appendix 2 concerns the consequences of adding 400 more students *to the level of 4400, one we will not reach until 1974.* To be sure, the University did not take the step of planning for 4400 undergraduates without detailed thinking concerning the consequences; nor did it do so without making provisions for staffing, housing, etc., commensurate with the anticipated effects of that expansion. But such planning was based essentially on the analysis contained in the Patterson Report, plus a small amount of experience with coeducation. A decision taken now to extend another 400 undergraduates beyond 4400 would stretch to a real degree the base of warranted confidence we could have in our ability to predict the effects of such a move—with respect to financial, academic, and the more amorphous but equally crucial issues covered under the "quality of life."

A consideration of these facts does not argue that expansion to 4800 or beyond would necessarily be undesirable or detrimental; it does argue that since—

(a) we have not yet reached 4400 undergraduates;
(b) we are already well beyond the (3200 undergraduates) from which we began the coeducational venture;

(c) we are in a transition state, during which the profile of the College contains a disproportionate number of underclass students, and we do not know quite how that fact may distort our present perceptions—

a decision to expand significantly is therefore considerably riskier at the present time than it would be if taken under more favorable circumstances—and it is plainly much riskier than the University's 1969 decision to expand.

Other things being equal then, the University's present situation argues against taking steps now toward any significant expansion beyond that already planned.

We now turn to a comparative discussion of the models themselves.

1. MODEL 1A: 4000 WITH FIXED NUMBERS.
MODEL 1B: 4000 WITH EQUAL ACCESS.

Since the advantages and disadvantages of both these models are nearly identical, we will discuss them together.

ADVANTAGES

1. The advantages of both of these models are primarily those that flow from their smaller size. With 4000 students, the College would continue to retain all the values associated with Princeton as a small institution: the ability of students to come to know a sizeable proportion of their classmates and professors, and the capacity of the institution to prevent itself from being fragmented into a number of more insular subinstitutions. Since Princeton has not lost these values and qualities at present—with a College of nearly 4200 students—it is clear that a reduction to 4000 would guarantee the retention of these important advantages. Although we have every reason to expect that we are not in danger of significantly eroding the primary values of a small-scale institution in the near future, at least through the planned expansion to 4400, there is no doubt that growth in itself entails some risk (how much risk depends on how much growth) of fragmentation.

DISADVANTAGES

1. Reducing the College to 4000 students increases sharply the difficulty of achieving two important goals simultaneously: first, the goal of maintaining something very close to our present male enrollment, and at least our present female enrollment; second, the goal of maintaining at least a 3:1 male/female ratio, and if at all possible, to improve upon it.

There are several important reasons—some already discussed—for adopting a policy that maintains the male enrollment at approximately present levels (3000-3200). Princeton's substantial educational and financial investment in several academic departments (including Engineering, Physics, Mathematics, and others) that are still heavily under-elected by women, is on the whole never fully utilized with a male enrollment in the present range. Any marked decrease in the male enrollment below those levels would risk a falling off in the strength of these particular areas, with resulting inefficiencies as well as possible losses in quality. Conversely, if we were to maintain present levels of students in these areas by special recruiting efforts, while at the same time allowing the total male enrollment to drop appreciably, the College would experience a consequent decrease in the number of men electing humanistic or social science studies.

It is important to remember, for example, that approximately 170-180 of the entering class are to be enrolled in engineering alone, quite apart from the numbers required to maintain present strength in other sciences where the University has an existing large investment in laboratories and tenured faculty. Until women begin to concentrate in these fields in much larger numbers, significant reductions in the male base would run some risk of having a detrimental educational impact on these particular fields, or on other important parts of the College's educational program.

There are additional reasons for trying to maintain something close to the present number of men in the College. Not only does the existing level of *academic* facilities and programs bear some relation to this number, but the vigor and variety of non-academic activities and programs might also well depend on having a male contingent of approximately the present size. Moreover, as we discussed above, at the time of the decision to become coeducational, the President and the Trustees pledged to maintain essentially the present number of men enrolled in the College. Adopting a policy that is consistent with this pledge, so long as such a policy can be defended as feasible and faithful to the central mission of the University, is plainly preferable.

If there are a number of compelling arguments for attempting to maintain something close to the present number of men in each entering class, there are also extremely powerful arguments for not only maintaining but significantly increasing the present number of women. Although there are beginning to be enough women in the College to create an environment in which women no longer feel like a small, potentially isolated group, it is still the case that women are under-enrolled in many academic programs and departments, and that the College as a whole would benefit in many ways from the contributions of additional qualified women undergraduates. Certainly to *reduce* the number of women in the College would be from every point of view—the educational benefits to the College, the morale of the women themselves, and the potential success of coeducation as a venture—a clear mistake.

In the view of the Patterson Report on coeducation, a view substantiated by the University's actual experience to date, a sex ratio of 3:1 was conceived to be the absolute minimum necessary for creating a genuinely coeducational institution. Better than 3:1 was highly desirable, but less was viewed as unacceptable. At 800/300 Princeton's ratio of 2.7:1 is marginally better than the absolute minimum, but the margin is a thin one, and it is clearly important to find feasible ways to improve the ratio, not to worsen it.

If we keep in mind the considerations just outlined, it is plain why a reduction in the target size of the College from 4400 to 4000 would make it very difficult indeed to maintain something like the present number of men in the College while simultaneously achieving a satisfactory male/female ratio—whether the policy is one of "equal access" or quotas.

Under a policy of equal access, the male enrollment could be expected to fall off to between 660-710 per class, for a total College male contingent in the vicinity of 2750—well below the range we have been considering as optimal, both from the standpoint of academic and extracurricular considerations, and from that of honoring the Trustees' pledge.

One may impose quotas to bring up the male enrollment to within the 3000-3200 range, but at a College consisting of only 4000 students, any move beyond 3000 men would take us outside of the range of acceptable male/female ratios. This leaves entering classes of 750/250 as the razor's edge on which to balance both requirements—with essentially no room for error or natural and inevitable fluctuations on *either* side. Indeed, quite ordinary variations in the yield on entering classes, or the rate of leaves of absence and other forms of attrition, could leave the College with a male population in the 2800-2900 range and a female population in the 850-950 range.

In addition, of course, such a policy suffers from all of the defects (discussed in Section IIA) of a policy of quotas—a considerable burden to bear, especially in light of the comparatively small benefits it purchases by bearing it.

In short, whether one followed a policy of fixed quotas or of equal access, the result under Models 1A and 1B would be an inability on the part of the College to achieve satisfactorily a number of extremely important educational objectives.

2. Second, to return to 4000 would require us to contract somewhat at a time when significant changes are taking place in the composition of the student body—changes which require additional expenditures in those areas where women are enrolling in considerably greater proportions than did men. It is sufficiently difficult to keep expenditures constant in the face of such pressures—i.e. to shift resources from one area to another. To reduce them would risk inflicting real damage on certain

academic areas to whose strength we must remain committed in order to survive as a first class institution. This is especially true because we have just come through a period of stringent cuts and there is little reason to think that many further cuts can be made without also inflicting corresponding damage.

3. A final and formidable disadvantage of reducing the size of the College to 4000 students, is the deleterious effect this would have on those parts of the University budget that are quite independent of engineering and the sciences. For example, by September 1973, Spelman Hall will be completed, with superb new dormitory space for more than 200 students, bringing the College housing capacity to a point where 4400 undergraduates can be accommodated. To *reduce* the number of enrolled students by 400 would create a considerable amount of unused dormitory space, resulting either in higher dormitory rents or deficits in the operation of Dormitory and Food Services with a concomitant drain on general funds. The dormitory situation, moreover, is only one example among many. In general, the University has pressed itself to maximize the use of *all* facilities and manpower during the current period of economic stringency in an effort to keep rising costs from rising even more. To begin to deliberately underutilize resources by cutting back enrollments at this time would be difficult to justify from almost any point of view.

2. MODEL 2A: 4400 WITH FIXED NUMBERS (800/300)

ADVANTAGES

1. A College of 4400 students, although considerably larger than the average over the last twenty years (3259) is still within the size range that enables Princeton to retain its distinctive combination of relatively small scale combined with something of the diversity and excellence usually found only in much larger institutions. We do not know, of course, precisely what it will "feel like" when we complete the expansion to 4400 presently under way; judging from the present level of 4100-4200, however, it seems safe to assume that the situation will not change significantly. As we noted in the discussion of Models 1A and 1B, growth always entails some risk of fragmentation, but the risks of this kind involved in reaching 4400 students do not seem large.

2. At this size level, there is a good match between existing and planned facilities, and the anticipated demands. This makes for an efficient institution, and creates favorable conditions for maintaining a balanced budget. Indeed, a balanced budget is anticipated to be maintained as we approach an enrollment of 4400 in the coming two years.

On the side of capital expenditures, meanwhile, the picture is the same. As Table 3.4 indicates, we project no major needs required to reach

4400 beyond those that were already present at 4000. Moreover, those capital expenditures that do have to take place can be spread over a larger base of students (at 4400) than would have been the case were we to remain at 4000. Finally, as Table 3.4 suggests, expansion to 4800 or 5200 does entail new capital expenditures beyond those already anticipated.

3. The maintenance of fixed quotas for enrolled men and women has the various advantages already discussed. First, quotas allow maximum control in assuring minimum (or maximum) numbers for students of either sex, and they make for maximum constancy in the system (course enrollments are more predictable, as are the patterns of undergraduate majors, etc.). While the male/female ratio of 800/300 per class is some distance from optimal, we know it to be at least tolerable. In short, a system of quotas, at the level presently in use, insures certain forms of stability—particularly in administrative planning—that are desirable.

DISADVANTAGES

1. Some of the chief disadvantages of this model are those associated with a policy of quotas and these have been fully discussed earlier in this document: the principle of quotas is fundamentally inequitable. Moreover, quotas by sex are likely to be illegal, if not now then in the near future. Finally, from the point of institutional stance or posture, quotas by sex will tend to suggest that Princeton's coeducational effort is less than a full one, and this may impede our efforts to attract the very best women (and men). Unless one has extremely compelling reasons for maintaining quotas by sex, therefore, considerations of equity, of possible changes in the law affecting private institutions on this issue, and of institutional stance all combine to make the arguments for a policy of "equal access" in admissions formidable. Indeed, since an analysis of the likely growth of applicant pools suggest that a policy of equal access would yield a student body composition (assuming the size of the College to be in the 4400-4800 range) not very dissimilar to that under the present quota system, the main arguments in favor of quotas lose much of their force. (For a full discussion of this point, see the analysis of Model 2B, as well as Appendices 1 and 2.)

2. Maintaining a fixed level of 800 men and 300 women in each class freezes the male/female ratio at a position just above the minimum tolerable point, measured either by the standard of the Patterson Report or by the observed experience with coeducation that Princeton has had to date. From virtually every point of view—academic, extra-curricular and social—an improved male/female ratio would yield educational benefits for the College, and take Princeton closer to creating a fuller, genuinely coeducational milieu.

3. MODEL 2B: 4400 WITH EQUAL ACCESS

ADVANTAGES

1. Many of the advantages of Model 2A are equally applicable to 2B. First, the size of the College (4400) is still compatible with retaining the benefits of a relatively small scale community. Second, from the point of view of attaining an excellent match between needs and resources (measured either in terms of physical plant or faculty), a College size of about 4400 makes for an effective and efficient institution—increasing the chance that the University can continue to maintain a balanced budget. In all these and similar respects, Model 2B is identical to Model 2A.

2. As contrasted with a considerable degree of control gained through the use of sex quotas in Model 2A, Model 2B offers the benefits of a policy of equal access. Since we have already discussed the intrinsic desirability of such a policy, we need not repeat the arguments here. It is important to notice, however, that quite apart from the fact that equal access is clearly a more equitable policy than one of quotas, its application under present and foreseeable future circumstances offers an opportunity to improve the male/female ratio on the basis of merit alone, i.e. it enables us to improve this ratio by taking the best qualified applicants. Assuming that the male and female applicant pools develop as we project, Model 2B would yield entering classes of approximately 780-790 men and 310-320 women between now and 1974-75. Eventually, once the pools had reached their anticipated steady-state (about 1977-78), each class would in all probability have roughly 745 men and 355 women, for a College of approximately 3000 men and 1400 women. The male/female ratio would by that time have moved from the present 3.2:1 to 2.1:1—a substantial improvement—and the absolute number of women on campus would have gone up by 425—a significant gain.

DISADVANTAGES

The principal disadvantage of this model is that, as we have noted, it is likely eventually to lead to a slight diminution in the number of men below the current level, assuming that the applications from women and men increase by 5% and 1% respectively for each of the next five years. Moreover, if the differential rate of growth in applications is greater than 1%-5%, then the impact on the number of men will be greater; if it is less, then the impact will be less. There is no question that, once a policy of equal access is adopted, we cannot be absolutely certain about the precise numbers of men and women that will be enrolled in any given year.

If the 3100-3200 range is a reasonable one within which to try to maintain the male enrollment—not only because of the pledge it[illegible] but because of the various reasons already discussed—then to the extent to which one falls below that enrollment, one incurs the corresponding disadvantages. As argued above (see under Section IIIB1e), we believe that, from an educational point of view, a reduction in the number of men to about 750 would have very minor consequences. Indeed, we argue there that the purely academic and budgetary consequences of a shift of even *twice* this magnitude would not be very significant. What is also relevant is the fact that even these minor consequences can be mitigated if they take place over a sufficient period of time to permit the adjustments which they may entail.

The main disadvantages of such a shift (from 800/300 to 745/355) have to be measured not so much in its strict academic consequences, but rather in terms of its impact on extra-curricular activities and on the general level of confidence and support the University enjoys from its alumni and friends. Both are almost impossible to estimate. With respect to the former, it should be noted that even if there should be some decline in certain extra-curricular activities heavily supported by men, which is not certain, there will almost certainly be gains through the enrichment of many activities by the new infusion of women students: a loss of about 100 men *from current levels* is almost certain to have a negligible effect when placed side by side the gain of about 425 women relative to current levels—and it is from comparison with current levels that we derive our estimates of the viability of one or another model.

The impact on alumni confidence of adopting a policy on which there is a clear risk of seeing the enrollment of men fall slightly below the levels that the President and the Trustees had promised to maintain is even harder to estimate, but we see it as depending ultimately on the strength of the case for such a shift—on a detailed objective comparison of the advantages and disadvantages for Princeton of each of the contemplated policies. We are confident that the arguments for a policy of this kind are persuasive; and that if they were clearly and fully explained, the alumni and other supporting constituencies would examine the situation objectively in the light of existing and developing circumstances.

Perhaps the most one can say is that there are some costs and risks associated with the policy just described, but their magnitude depends on the extent to which the alumni and other constituencies could be persuaded of the rightness of the policy.

4. MODEL 3A: 4800 WITH FIXED NUMBERS

ADVANTAGES

1. Increasing the size of the College would allow one to add more women to the student body, and simultaneously to improve the male/female ratio. This would depend, of course, on the nature of the quotas

imposed. If one kept the number of men at its present level of 800 per entering class, for example, the number of women would rise to 400, and the male/female ratio to 2:1. Clearly, other ratios could be achieved simply by varying the base numbers for each sex (700/500, or 900/300, etc.). Depending, of course, on the composition chosen, this policy could therefore eliminate the disadvantages of Model 2B. One could guarantee a minimum population for academic and extra-curricular activities adequate to insure that none would suffer setbacks from the levels at which they have recently been flourishing, while at the same time reap the benefits brought by the additional women. Similarly, there would be no risk of encroaching even slightly on the level of male enrollment embodied in the Trustees' pledge.

2. This policy would enable the College to retain control over the male/female ratio and thus correct for any sudden fluctuations in the applicant pools that might otherwise have harmful effects.

3. This model, as compared to earlier ones, allows for considerable lead time, permitting a longer period of gradual growth over which to absorb changes.

4. It would provide a larger population of students to support a new Student Center, as well as new facilities for Creative Arts and Performing Arts, should it be decided that these are needed.

5. Adding 100 new places to each entering class (from the present 1100 to 1200) would permit Princeton to admit many superbly qualified candidates, including some additional men, whom we are now obliged to turn down for lack of space. This in turn would help to ease our relations with schools, alumni, and friends, making their efforts to seek out and recommend the best applicants to Princeton somewhat less frustrating, and thus even more effective. An additional 100 places in the entering class would also ease the pressure created by whatever constraints may (quite properly) be imposed on the class in the effort to make it diverse in all of the ways that we think important.

DISADVANTAGES

1. One chief difficulty of expanding to a College of 4800 is that a projected growth of this amount—at a time when the College is still in the midst of a complex expansion from 3200 to 4400 students—is not without financial and academic hazards. Although we feel that the College is on firm ground in its plans for reaching 4400 with a balanced budget, and without any dilution in the quality of the educational experience, there is nonetheless no substitute for actually accomplishing this move successfully before deciding to embark on further substantial expansion. Although Appendix 2 suggests that we could continue from 4400 to 4800 without major consequences for the operating budget[7] we

might conclude when we reach 4400 that more than the projected additional 36 faculty members would be necessary to achieve a College of 4800 students. In such a case all of the estimated costs would rise without any compensating income. The alternative of not making needed additional faculty appointments, thereby suffering some diminution in the quality of education, would clearly be unsatisfactory.

Similar considerations, of course, hold true for nonacademic programs. It is difficult to estimate how far the College is from quantum jumps in staff needed to maintain essential administrative services. We can be relatively sure for a College of up to about 4400, but the issues become much more complicated as we attempt to project the impact of an additional 400. (See the general discussion of this problem in Section IIIB1 above.)

2. If the Graduate School is not to undergo any significant growth—indeed if it might well slope down to about 1300—then 4800 undergraduates would place the undergraduate/graduate ratio at about 3.7 (see pp. 85-87 and Figure 3.1), a return to the ratio which was obtained in 1959-60. As we have already argued, the resulting shift in the mix of teaching for individual faculty members is likely to reduce the graduate component, and this might in turn adversely affect both research (which is strongly linked to graduate teaching) and Princeton's ability to attract and retain first class scholars. It is impossible to weigh these factors precisely, but it is no less clear that they are important—indeed, they are to a great extent responsible for Princeton's relatively recent emergence as a major university.

3. If at 4400 there is some slight risk of losing some of the benefits of institutional small size—benefits that we value highly, and that have made Princeton distinctive over the years—then there is clearly a greater risk in moving to 4800. Nor is there any certain way of measuring the degree of risk. It is perfectly conceivable that the essential benefits of small size would remain even to a level of 5000 and perhaps beyond; it may also be that with 5000 or more students, new and equally valuable things would begin to happen in the Princeton context, resulting only in a change, not a net loss. The principal point, however, is that these matters are uncertain. Moreover, unlike the decision to grow in order to achieve coeducation—a case where the educational benefits to be derived from growing were potentially so great as to overshadow the attendant risks—we have now a choice whose potential benefits, though sizeable, are much more modest and certainly not nearly of the order of magnitude as were promised by the addition of 1000 women undergraduates to a previously all male institution. Any significant risk must therefore weigh much more heavily in the decision.

4. A further disadvantage of this model is that any adequate plan to

reach a College of 4800 students would require a sizeable capital expenditure--principally for dormitory and dining space—at a time when capital (and other) funds are extremely scarce and when we have important actual or potential needs elsewhere (endowment for student aid, to mention a crucial and continuing need). To be sure, capital needs are not always in competition with one another, since the same persons who might endow a dormitory might have no interest in contributing to a building for the Performing Arts. But there is some degree of competition, if not for actual funds, then certainly for the efforts and energies of those who work to raise those funds.

Even if we had no other needs, the estimated cost of $8 million-$9.5 million (to reach 4800) constitutes in itself a sizeable disadvantage. To take on major capital costs in order to build dormitories and other supporting facilities at a time when some major educational program needs are confronting the University, is to place a very heavy burden on resources in a period of financial stringency or perhaps to distort somewhat the priorities that should be applied.

5. Finally, this model entails all the disadvantages—previously discussed—of maintaining a policy of quotas. Moreover, since such benefits as accrue to a quota system are marginal even at a College size of 4400 (see discussion of Model 2B), at 4800 they tend to disappear altogether, essentially because the College would be large enough to include a materially greater female enrollment, a male enrollment of about 800 in each class, and an improved male/female ratio.

5. MODEL 3B: 4800 WITH EQUAL ACCESS

ADVANTAGES

1. The advantages and disadvantages of this model are, with one exception, precisely those of the previous model (3A). Financial considerations are essentially identical, and the risks associated with continued growth at this time (uncertainty of impact on some educational programs, on faculty staffing, and on the institution's sense of small scale) are also the same.

2. The major significant difference—and it is an extremely important one—between 3A and 3B lies in the fact that 3B possesses the considerable intrinsic advantages of a policy of equal access. These inherent advantages appear even more compelling with 4800 students because the College would be virtually guaranteed numbers of men and women comfortably above minimal acceptable levels, and this is the case under an equal access policy as well as under a quota policy. At 4800, with 3200 men and 1600 women, one is easily within the minimum desirable range for each "critical mass," assuming 1% and 5% growth rates for the male and female applicant pools, respectively. Indeed, even for the

most extreme and highly unlikely projection that we have made—0% growth for male applications per year, 10% growth for female—the number of men stays around 3050. In other words, the model guarantees a student population for academic and extra-curricular activities fully adequate to insure that no programs will have to suffer setbacks from the levels at which they have recently been flourishing. It permits the institution to honor its pledge not to reduce the male enrollment; and it allows the College to enroll greater absolute numbers of women while also improving the male/female ratio. Moreover, all of this can be accomplished without sacrificing the benefits of an equal access policy.

6. MODEL 4A: 5200 WITH FIXED NUMBERS
MODEL 4B: 5200 WITH EQUAL ACCESS

ADVANTAGES

1. The chief advantages of 4A and 4B are those shared by 3A and 3B and there is no need to restate them here. We note only that 4A and 4B seem to offer no clear advantages *over and above* those shared by 3A and 3B. More students, of course, offer the opportunity to create a more diverse institution, capable of supporting more activities and programs, but it is difficult to estimate whether the gains from such increases would be substantial.

DISADVANTAGES

1. The chief disadvantages of 4A and 4B are those of 3A and 3B but carried significantly further. They include a stronger threat to the small scale and sense of community of the College, and perhaps of the whole University; a need for sizeable capital expenditures of funds in *all* of the areas described in Table 3.4 and a sharply increased impact on the undergraduate/graduate ratio.

* * *

This concludes our discussion of the eight principal models in terms of which it has seemed useful to frame the policy decisions concerning the size and composition of the College. We now proceed to the fourth and final section of this chapter, in which we make a general evaluation of the models and recommend a course of action.

IV. CONCLUSIONS

A. A First Approximation

In the course of a prolonged analysis of the entire set of models before us, it has become increasingly clear to the Commission that those models with 4000 and 5200 students entail too many disadvantages—of many different kinds—to remain viable alternatives at this point in time. The combination of financial and educational risks associated with either reducing the size of the College, or expanding it substantially, have led us to focus finally upon those models that have 4400 and 4800 students each. Moreover, as discussed earlier, the Commission has come to feel that an equal access policy is clearly preferable to one of quotas, so long as we are confident that the institution could absorb the implications of equal access without damaging educational and other programs. With this consideration in mind, Model 3A (4800 with quotas) seems decidedly the least optimal of the models in the 4400-4800 range. It combines the disadvantages of quotas with the risks and uncertainties inherent in a larger size. Equally important, the degree of control over the composition of entering classes which Model 3A offers is not materially different in its results from the anticipated outcome that would derive from an equal access policy. In short, 3A would retain quotas without tangible offsetting benefits.

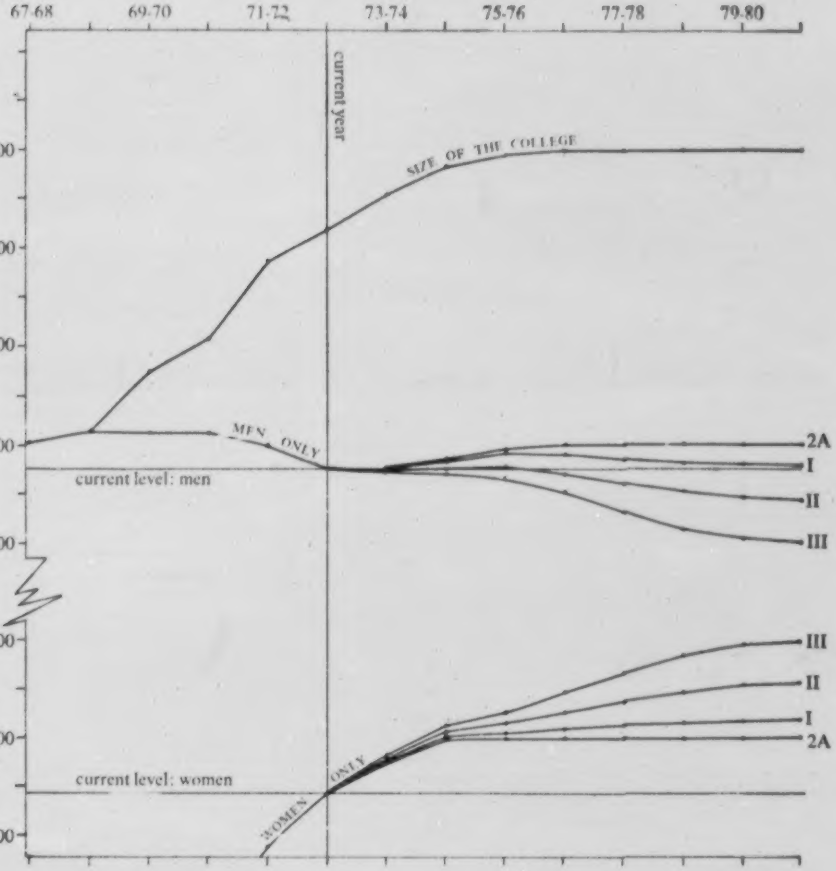
The remaining models—2A (4400 with quotas), 2B (4400 with equal access) and 3B (4800 with equal access)—remain, in the Commission's judgment, as possibilities that offer the best opportunity for achieving the different purposes before us: enrolling at least minimal "critical masses" of men and women students in the College; maintaining the male enrollment at or close to its current size; offering women equal access to the College in the admissions process; and making what improvements are possible upon the present male/female ratio. In analyzing the issues before us, Model 2B (4400 and equal access) is clearly a pivotal model, in that it is like 2A (4400 and quotas) with respect to to size but not admissions policy; and like 3B (4800 and equal access) with respect to admissions policy but not size. It will be useful, therefore to weigh 2B against each of the other models.

This comparison will be facilitated by Figures 3.2 and 3.3 which exhibit in a graphic way the course that the size and composition of the College would be expected to take for each of the three models and for each of our three principal assumptions concerning applicant pools. Figure 3.2 plots these various courses for entering classes of 1100, and Figure 3.3 for 1200. In the latter case (classes of 1200), because of the need for staging pending the construction of additional dormitory space, the first 1200 class is not assumed to enroll until the Fall of 1975.

For both Figures 3.2 and 3.3, line I represents the assumption that there will be no significant growth in applications from either men or women; line II corresponds to 1%/5% growth rates for men and women, respectively (the course we think is most likely); and line III represents the extreme assumption that women's applications will grow at 10% annually while applications from men will stay at present levels.

FIGURE 3.2

Size and Composition of the College—Entering Classes of 1100
Models 2A and 2B

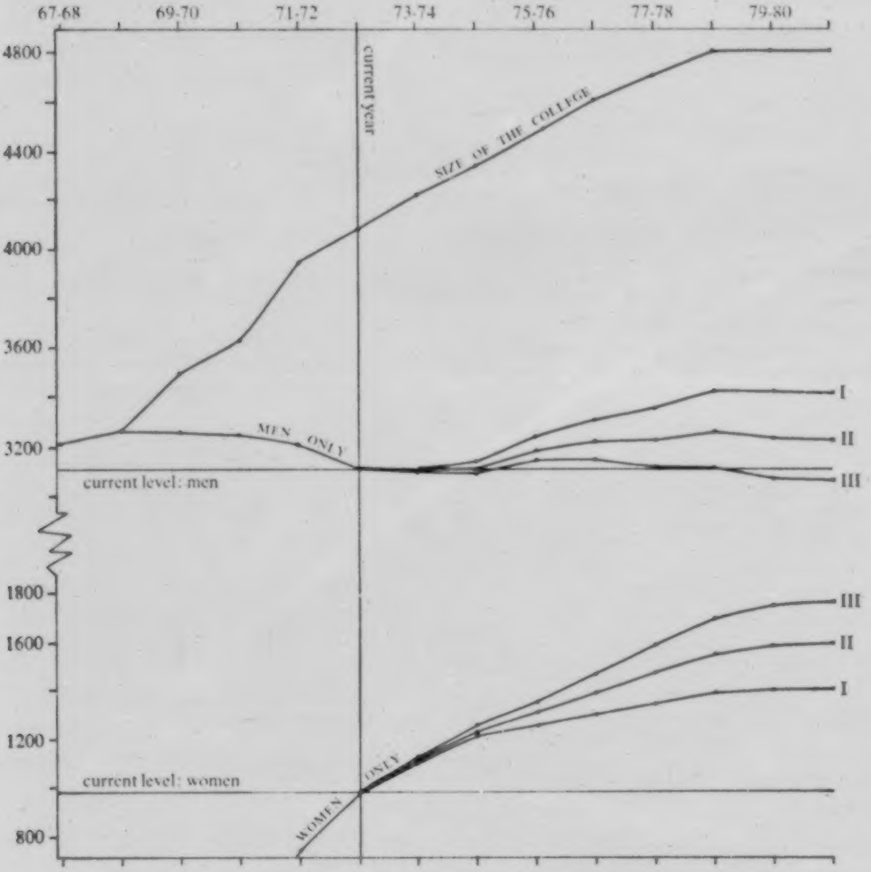


MODEL 2A = fixed quotas of 800 men and 300 women

MODEL 2B
I = 0% growth in applications from men or women
II = 1% growth for men, 5% for women
III = 0% growth for men, 10% for women

FIGURE 3.3

Size and Composition of the College—Entering Classes of 1200
Model 3B



I = 0% growth in applications from men or women
MODEL 2B II = 1% growth for men, 5% for women
III = 0% growth for men, 10% for women

In Figure 3.2, line 2A plots the consequences of maintaining a quota system, with entering classes at the 800/300 levels indefinitely, and is thus insensitive to fluctuations in the applicant pools.

Finally, we have assumed, somewhat artificially, that students lost by attrition are replaced by transfer students in the same class, and in roughly the same proportions by sex, as those that left. An alternative policy would be to anticipate the attrition rate by admitting classes slightly larger than one could handle if everyone stayed, and thus to let in no transfer students. The most reasonable policy may lie somewhere between the two extremes, combining the advantages of larger entering classes with those brought by the high quality and motivation displayed by transfer students, who have already proved by their performance elsewhere just what they would bring to Princeton and how they would profit from their stay here. In any event, what concerns us here is that fact that whatever mix of these policies is adopted to compensate for losses due to attrition, the decision would—because of the small numbers involved—have little effect on the percentages or absolute numbers of men and women in the College.

The first comparison we will make is between 2A and 2B, the two models at 4400. The difference between them is simply the difference between a policy of equal access and one of quotas. As we have argued throughout, and most particularly in Section IIA, a policy of equal access is intrinsically preferable to one of quotas, and it ought to be adopted unless it can be shown to have consequences which would seriously threaten Princeton's ability to carry out its central mission. The consequences of an equal access policy (at 4400) on the composition of the student body are explored in Figure 3.2, side by side with the consequences of maintaining quotas of 800 men and 300 women. Several things should be noticed by looking at the graph:

(a) The effects of a policy of equal access make themselves felt gradually, and the full impact would not be experienced until the Fall of 1980, when the College would reach a steady state relative to our assumptions. The reason for this is clear: it takes five years before the applicant pools (and therefore the resulting entering classes) level off at the expected steady state, and it takes an additional three years at those levels to make the effect felt in all four classes.

(b) The Fall of 1977 would be the first time, under a policy of equal access, that we would expect the male enrollment to fall materially below present levels, and then only by about a total of 60 men in the whole College. Therefore it would only be by June, 1978 that we would be in a position to begin evaluating the actual consequences of a diminished male enrollment. Indeed, even after 1980-81 it would be difficult to discern much of an effect, since the difference between the ultimate anticipated steady state under this model (using 1%-5% growth assumptions for applicant pools) and the present male enrollment is only a total of 120 for the whole College.

(c) Under 2A, the male enrollment would remain essentially at its present level (3100), climbing slightly to 3200. However, under that policy the percentage of women in the College would level off at 27.3, very close to the absolute minimum argued by the Patterson Report, and certainly less than we feel is desirable, if the experience of recent years has any predictive value at all. Of course, one could maintain the general policy of quotas while raising the percentage of women to a more desirable level. But to the extent to which one followed such a course one would make the consequences of quotas indistinguishable from those of a policy of equal access: in effect, one would retain all the disadvantages of a policy of quotas, and gain nothing in return.

We argued at the beginning of Section III that as the differences between the consequences of a policy of quotas and one of equal access diminish, the advantages of maintaining quotas become vanishingly small. This principle, coupled with the facts that emerge from Figure 3.2, clearly indicates that, over the next five years at least, Model 2B is strongly preferable to 2A (leaving aside 3B for the moment). 2A would regain some attractiveness only if the applicant pools began to behave something like our third, "extreme," hypothesis (0% growth for men and 10% growth for women).

Our first, limited conclusion, therefore, is that between Models 2A and 2B, 2B (4400 with equal access) is the clear choice for the next five years and probably thereafter as well. Over this initial period, Model 2B carries virtually no risk of having unfavorable consequences, and it carries with it all the advantages in favor of a principle of equal access. The only material risk of 2B is that in five or six years, one of the more extreme projections (for applicant pools) would be actually realized. In such a case, it would be extremely difficult to turn back the clock and revert to a policy of quotas, but the situation could be fully assessed at that time, and reasonable corrective steps considered.

We think, moreover, that there are two factors which mitigate the force of this contingency, and which therefore reinforce the argument that 2B is definitely preferable over 2A. First, it is far from certain that in five years there will be the *legal* option of maintaining a policy of quotas by sex. Second, if the absolute number of men or women in the College should seem too low, we still have the unexplored option (to be discussed below in connection with 3B) of adjusting the size of the student body upwards to the point where the then prevailing and expected applicant pools seem to guarantee the desired minima. We conclude, therefore, that 2B is definitely to be preferred over 2A: that the inherent merits of a policy of equal access more than make up for any benefits that could be expected from staying with quotas.

It now remains to compare 2B with 3B, the two remaining models with equal access. It will be recalled that the principal advantage that the 4800 models (3A and 3B) held over the ones with 4400 students was that 4800 essentially guarantees male and female enrollments either at or above current levels. A glance at Figure 3.3 reveals that it is only on hypothesis III (continuous 0% growth for male applicants and continuous 10% growth for women applicants), and then only after 1979-80, that the male population would dip below present levels, and then only by about 60 for the entire College. This projection has the effect of guaranteeing absolutely that the current number of men would be maintained, and that academic and extra-curricular activities which depend on such populations will continue at least at present levels.

The other advantages of 3A are also considerable, including that of opening up much-needed additional places on the admissions list.[a]

As we pointed out in connection with the comparison of 2A with 2B, male enrollments in the College under 2B would not dip below current levels until September 1977, and we would reach substantially 4400 (4340) students by September 1974. Therefore, if the principal advantage of Model 3B (4800 students) over 2B (4400 students) is the protection it affords against unwanted dips in either the male or female population, then that benefit would very likely not be needed before 1977, if ever. In other words, even if 3B proved ultimately to be preferable to 2B, there are compelling reasons for waiting at least three or four years before making such a decision.

Additional reasons for not adopting 3B at this time lie to a large extent in the uncertainties about the reliability of our present estimates concerning the finances of the University, as well as more intangible but supremely important factors bearing on the quality of academic and non-academic life in the College. To opt now for a student body of 4800 would entail taking virtually irreversible steps to *create* (at great cost) a capacity which—for financial and other reasons—we would have to sustain, even though we might in retrospect judge a College of 4800 to be too large.

In light of these facts, and of the large capital expenditures that a move to 4800 would require, Model 2B seems to us to come closest to satisfying the various purposes we feel the College should strive to achieve in the next few years. At the same time, an intermediate model between 2B and 3B might possibly meet the needs of the College even more satisfactorily. An option of this kind is in fact explored more fully in the next section of this report. Meanwhile, the Commission does feel that expansion to a College of fully 4800 students is not at this time desirable. In four or five years, we would be in a much better position to judge if circumstances warrant such an expansion, for by that time we will have absorbed and can evaluate the academic and extra-curricular impact of the present move to approximately 4400. In addition, we will have a better idea of what to expect from the developing applicant pools of men and women; we will hopefully have financed and built the additional academic space on which we place so high a priority; and we will have achieved a "steady state" that can serve as a foundation on which to make reliable estimates and analyses concerning the impact of any further significant growth.

If at that time we should decide to expand to 4800, the principal costs of having waited will lie in the small dislocations we may have suffered in the interim period. These are surely costs that we can sustain. We conclude, therefore, that present circumstances do not warrant the choice of 3B over 2B—of 4800 over 4400—although we would allow for the fact that the situation may look quite different in four or five years' time, when we have had the benefit of intervening experience.

B. Intermediate Options—An Improvement

We have so far chosen to discuss the matter of size and composition in terms of discrete models differing from one another by integers of 400 students. This approach was chosen in part to facilitate discussion, and in part because of the fact that 4400 is the College's current target number, and 400 constitutes a relatively economical planning unit from the point of view of constructing new dormitory and dining space. Nonetheless, viewing the issues of size and composition in this way can also be misleading, particularly in two important respects.

The first, and by far the most important respect, is the artificiality and seeming precision that is introduced by discussing the various models in terms of exact numbers of applicants or enrolled students pertaining to each. We hope that if we have demonstrated nothing else in this document, we have shown the complexity of the interlocking factors that determine a reasonable choice of policy with respect to the range of issues under consideration—indeed, not only their complexity, but also the uncertainties with which we are necessarily faced concerning some of the most important parameters: size, composition and growth rates of applicant pools; academic and financial implications of various policies; and yearly fluctuations with respect to many matters beyond our control (such as shifts in student academic and extra-curricular interests, the emergence of new academic fields of study, etc.). The list of variables is enormous, and because of this fact we feel that the apparent precision which seems to characterize each of the various models should serve primarily as a means of clarifying issues, making sensible general distinctions, and focusing discussion. For example, during this current year (1972-73), the College had expected to enroll 4240 undergraduates. However, because an unusually large number of students requested leaves of absence during last summer, because required withdrawals were slightly higher than had been anticipated, and because the College was slightly underaccepted by freshmen and overaccepted by transfers in last spring's admissions process, this fall term began with only 4100 students enrolled. In other words, a number of relatively small fluctuations account, on an annual basis, for shifts of 100-200 in the number of enrolled students at any given time. The most we expect from any given policy, therefore, is that it will define a range—of size or composition—within which it seems reasonable to try to stay. Therefore, a College size of 4400 means essentially a number of enrolled students somewhere between 4300-4500, depending upon the result of many individual fluctuations. A reasonable policy concerning the size of the College should be sufficiently flexible to take into account a broad range of changing circumstances. Consequently, all of our policy recommendations should be taken as referring to a range rather than to a precise number.

The second misleading aspect of our discussion concerns the impression that the only options open to us differ by increments of 400. In trying to choose between 2B and 3B, we felt the tension between strong, clear advantages associated with a College of 4800 balanced against both the uncertainties and the large capital costs entailed by expanding to such a size. The option of planning for a College of slightly more than 4400, but still substantially less than 4800, was consequently explored, since an intermediate model of this kind could well provide close to an optimal solution to the problem before us, particularly if it could be achieved with relatively small investment of capital. Thus, considering a range of 4400-4600, rather than the one associated with 2B (4300-4500), would provide clear insurance against some of the risks of staying at 4400: it offers a hedge against remote but possible extreme variations in the size and composition of our applicant pools, while avoiding the principal risks that might accompany an immediate expansion into the 4700-4900 range. For example, it appears that it may be possible, without substantial capital costs, to enlarge the College's dormitory capacity by approximately 140 places. Should this prove to be the case, one could then expand each entering class by about 35 students. Under a policy of equal access, each entering class of 1135 would [over the next three years] probably contain approximately 780-800 men, and 335-355 women per class. Once a "steady state" under an equal access policy had been achieved (beginning about 1977-78), each class would probably contain approximately 765-770 men, and 365-370 women—assuming 1%-5% growth rates for men's and women's applicant pools.

These figures compare with the 785 men and 300 women enrolled in the present freshman class.

One cannot emphasize enough the *approximate* nature of such projections. As suggested earlier, any one of a number of variables—including fluctuations in the relative sizes and quality of men's and women's applicant pools, the "yield" on admitted students, the number of admitted students who opt for deferred admission, etc.—can affect the actual number of men and women who enroll in a given class. Hence our feeling that the crucial objective is to determine target *ranges* within which we expect to operate, recognizing that there will be annual fluctuations that make more precise predictions impossible.

The advantage of an intermediate model of approximately 1135 students per class, and 4400-4600 for the College, is that it retains all the advantages of Model 2B while offering in addition some of those associated with Models 3A and 3B: more absolute numbers of women enrolled in the College, a slightly improved male/female ratio, and an expected male enrollment of 765-770, or only 15-20 fewer than in the class of 1976. We conclude that this model is preferable to Model 2B, and therefore to all the others as well. We urge that it be implemented if the needed 120-150 additional dormitory places can be found at relatively low cost.

C. Recommendation

We recommend

(1) that admission to Princeton be according to a policy of "equal access" for men and women, as defined above, and

(2) that the target range for the College should be 4300-4600, with a preference for the upper part of that range if additional dormitory spaces can be found at suitably low cost.

CHAPTER 4

The Structure of Academic Time

CONTENTS

THE DURATION OF STUDY: THREE VS. FOUR YEARS

- *The Argument for a Basic Three-Year Program*
- *Reactions to the Three-Year Proposal in the University Community*
- *Effect on Graduate School Admissions*
- *Reactions to Three-Year Programs by Those Eligible for Advanced Standing*

THE ORGANIZATION OF THE ACADEMIC YEAR

- *Comparative Educational Merits of Semester and Extra Term Systems*
- *Economic Aspects of Year-Round Operation*

THE ACADEMIC CALENDAR

- *Ending the First Term Before Christmas: Trade-offs and Compromises*
- *Second Semester*
- *Economic Consequences of the Revised Academic Calendar*

VARIATIONS IN THE RHYTHM OF TIME AND MOTION

- *Patterns of Deferment*
- *Patterns of Acceleration*
- *Partial Advanced Standing*
- *Continuing Education*
- *Flexible Patterns and the Stability of the Population*

The duration, pace, and continuity of study and the organization of the school year are the fundamental units of academic time. These elements once appeared to be among the least problematic in the educational system. Until recently there were few beliefs that were more honored by custom and regarded as more natural than the conviction that a college education should begin after twelve years of prior schooling and should be completed during eight consecutive semesters of campus-based study. This pattern is still preferred by most but it has been increasingly questioned by a growing number of educators and students who are either partial to other models or object to any rigid scheme which is imposed on a heterogeneous population. The Commission has, accordingly, considered whether new schemes should be substituted for old and whether the rhythm of time and motion might be more responsive to varied student needs. Specifically, we directed our attention to four interrelated questions: (1) How many years is the appropriate length of an undergraduate education? (2) Into how many terms shall each year be divided? (3) What calendar shall govern each term? and (4) What optional variations shall be introduced into the system of academic time and motion?

THE DURATION OF STUDY

The undergraduate program of nearly every American college and university is based on four years of study. The ubiquity of this pattern and its invulnerability to change is doubtless partly a function of inertia but it remains so popular primarily because so many believe that four years is the point of intersection between the time required to convey and absorb what needs to be learned. The student is given adequate time to pursue an orderly sequence of general and specialized studies, to explore alternatives and rectify errors of choice and to reflect about his experiences. Meanwhile, he is presumably growing in intellectual power and emotional balance so that by the end of his senior year he is prepared for the rigors of career or further education.

The Argument For A Basic Three-Year Program

Despite the pervasiveness of four-year programs the Commission felt obliged to examine other structural alternatives. In the winter of 1971 the Chairman submitted a report to the Commission and to the University community in which he proposed, among other things, that "Princeton University should adopt a three-year undergraduate program with a limited option to pursue a fourth year of study."[4] The fourth year would be available to students who would find it difficult to finish in less time because of (1) deficiencies in their secondary school preparation, (2) "too much pressure," (3) errors in the selection of a major, or (4) inherent features of their areas of concentration. This group was expected to number about 20 percent of every freshman class.

The recommendation that all other students should pursue a three-year collegiate program was based on a number of general propositions about American education akin to those advanced by the Carnegie Commission and on the expectation that certain specific benefits would accrue to both Princeton students and to the University.

> *Many more young people attend college.* In 1900, four percent of the age group went to college; in 1970, 40 percent go to college. . . . Some—perhaps as many as one in six—are unwilling "captives" of formal higher education, attending against their will because of the pressures of their parents and the expected requirements of the jobs to which they aspire.
>
> *Much more of education takes place before college, outside of college, and after college than ever before.* The schools, including high schools, have improved their quality since World War II, and they can improve still more—much of the last year of high school, in particular, is wasted for those already admitted to college. The students also come to college with more knowledge due to the influence of the higher levels of education of their parents and to the easy availability of TV, books, and films. Many students are one year farther advanced, academically, than their age group was at the end of World War II. . . . College students also have more access than ever before to the world around them through TV, travel, and service opportunities. After college, there is more need for continuing occupational training on the job and through course work and more opportunity than ever before for cultural advancement due to more leisure, higher standards of living, and improved means of communication.
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> *Young people have changed.* They reach physiological and social maturity at an earlier age—perhaps by about one year, and yet more of them are kept longer in the dependent status of student. They are more resistant to the seemingly endless academic "grind" that, for more of them, goes on for more and more years without letup, sitting at their desks as recipients of knowledge but without productive contribution. . . .[5]

Despite these general changes in society Princeton students ordinarily complete sixteen years of formal schooling; moreover, about two-thirds of Princeton graduates spend an additional four to six years in pursuit of advanced degrees. It seemed possible that one year of undergraduate study could be foregone without significant loss—indeed with some gain—especially since the total time devoted by students to formal schooling would still encompass a commodious period ranging from 15 to 21 years.

Specifically, the following advantages were claimed for a three-year program at Princeton:

1. The early commitment to an area of concentration would give greater focus and depth to undergraduate study and help dispel the sense of aimlessness experienced by some students, particularly in the sophomore year.
2. A student could interrupt his schooling for as long as a year—for educational purposes or for any other reason—without exceeding the present four-year time requirement for the degree.
3. The student body would be distributed among three rather than four classes, thus increasing the size of the freshman class and making it possible for the University to admit more women—as well as men—without incurring additional capital costs or increasing the total size of the College.
4. The shortened period of study would reduce costs to the student and his family.

The proposed structural innovations were widely discussed and reactions were sought from all constituencies in the University including students, faculty, administration, alumni, and trustees. In addition: (1) a statement was solicited from every instructional department, (2) attitudes of students and alumni who were eligible for early graduation through advanced placement were systematically canvassed, (3) data were collected as to the stability of choice of major, and (4) graduate and professional schools were asked to estimate what impact the proposed change would have on the admission of Princeton graduates to their institutions.

Reactions to the Three-Year Proposal In the University Community

The University community was generally skeptical about the wisdom of adopting a three-year program and a number of the underlying assumptions, in particular, were repeatedly challenged by faculty and students. Several recurrent themes may be readily identified.

1. A substantial fraction of the faculty, particularly senior professors in the humanities, questioned the proposition that the current generation of students is better prepared academically than their predecessors. According to this view, freshmen now sometimes arrive having had sophisti-

cated exposure to a number of fields but their command of fundamental skills, particularly in the use of language, is no greater than in the past. A three-year program, moreover, would be especially inappropriate for underprepared students who may have attended mediocre secondary schools. Such students almost certainly would be obliged to elect the four-year option and they might be undeservedly stigmatized for their failure to proceed at the same pace as their peers.

2. Students, especially, disputed what they felt to be the implication that additional years of schooling were a burden rather than a welcome opportunity to exploit fully Princeton's educational resources. Many said that they would feel deprived if they were compelled to specialize prematurely without sufficient opportunity to explore many branches of knowledge or to "loaf and invite the soul." Considerable concern was expressed about the pressure to select an area of concentration by the end of the second term of the freshman year before the academic and career interests of many students had crystallized.

The Undergraduate Survey conducted by the Commission confirmed these apprehensions. (Table 4.1) Upperclassmen were asked (1) to recall their preference for a major while still freshmen, (2) to indicate what department they actually chose as sophomores, and (3) whether they changed their area of concentration at a later date. If we assume that the final choice is also the better choice, the data reveal that adoption of a three-year program would result in substantial error in the selection of an area of concentration and that selection of a major is most stable precisely in those "sequential" disciplines in which a reduced program is least appropriate.

(1) Somewhat fewer than half of all respondents (44 percent) would have selected the same major as freshmen and as sophomores and would have gained no additional advantage from postponing a decision; a comparable number (46 percent) would have chosen "incorrectly" at the end of the first year of study; and about one-tenth of all students would have made the "wrong" choice at both points in time.

(2) The proportion of students who make early and stable commitments to an area of concentration tends to be higher in the "hard" than in the "soft" disciplines. Engineering students exhibited the highest rates of concordance between the freshman and sophomore year (69 percent) followed in descending rank order by majors in the natural sciences (59 percent), the social sciences (41 percent) and the humanities (37 percent).

(3) Almost every department expressed some misgivings about the effect of a shortened time period on the quality of its programs. The consensus was perhaps best expressed in a joint statement by a chairman

and an undergraduate representative who wrote: "Our reasons for retaining the present four-year scheme are several: the time needed for a student to decide upon his fields of concentration; the time needed for *minimal* coverage in certain disciplines ('coverage' being an ideal not yet abandoned by some departments, and for good reason); the time needed for a young person to assimilate ideas and make them part of his personality." This sentiment was especially evident in the natural sciences, in programs such as the History and Philosophy of Science which, in effect, require a "double-major," and in departments such as Music or East Asian Studies in which students begin their studies having had little or no prior work in secondary school.

Effect on Graduate School Admissions

Several chairmen expressed some concern about the competitive position of three-year graduates relative to others in seeking admission to leading graduate and professional schools. A substantial number of leading graduate and professional schools apparently also have reservations about the effect of shortened degree programs on academic excellence. The responses by such institutions to a set of hypothetical questions posed by the Commission showed rather clearly that Princeton graduates of three-year programs might suffer serious competitive disadvantages in the post-graduate admissions process. A significant number of chairmen or deans in all divisions and schools—social sciences (26 percent), professional schools (30 percent), natural sciences (39 percent) and the humanities (44 percent) indicated that "all things being equal" they would prefer alumni of standard programs. (Table 4.2)

Reactions to Three-Year Programs by Those Eligible for Advanced Standing

The Commission made a special effort to elicit opinions about three-year programs from the small number of students and alumni who were eligible for advanced standing through advanced placement examinations. In an area about which there exists strong opinions and comparatively little data a small group of students, past and present, may be the only authentic experts. These include: (1) students and (2) alumni who took advanced standing; (3) undergraduates who took advanced placement examinations and failed to apply for advanced standing; and (4) those who having initially applied for advanced standing later chose to return to their original class.

Since all of the findings are based on very small samples they must be regarded as suggestive rather than conclusive. Nevertheless some cautious generalizations seem warranted: (Tables 4.3 through 4.6)

1. The majority in all groups—whether they chose to graduate in three or in four years—report that they would make the same choice "if they had it to do all over again."

2. The most frequently cited reasons for selecting a three-year program included a desire to hasten the beginning of a subsequent educational or professional career, the reduction of costs, the opportunity to make efficient use of time, and the challenge of a more demanding educational program.

3. The most prominently mentioned reasons for following or reverting to the traditional pattern are a desire to enroll in a wider variety of courses, uncertainties about the major, the attractiveness of the total Princeton experience, and a general inclination to linger on the campus.

The burden of proof is on those who propose change, and the evidence does not confirm that persons who were eligible for early graduation do regret their decision to complete their education in the normal time. Some of those who have special reasons to complete their degrees in less time may do so now through Advanced Placement and some additional options might be made available to others. But the case for the three-year program as the basic pattern remains to be proved.

The report by the Chairman of the Commission, then, was an invitation to members of all constituencies to consider whether it was, in principle, desirable to establish a three-year program as the norm. The serious reservations of many members of the University community and most of the survey data suggest that any such step at this time would be unwise, or at least premature. In view of the discussion in the previous paragraphs the Commission recommends *that the normal duration of undergraduate study shall remain four years.*

THE ORGANIZATION OF THE ACADEMIC YEAR

Comparative Educational Merits of Semester and Extra Term Systems

In the absence of strong reasons to the contrary there is an initial presumption in favor of a semester system as against other ways of organizing the academic year. A two-term calendar which begins close to Labor Day and ends in late spring has the following positive advantages:

1. Each semester, which may range between fifteen to twenty weeks, provides sufficient time for classroom instruction, reading and examination days, and periods of recess.

2. A semester system entails the least amount of turnaround time. A trimester structure, a quarter system, or additional summer sessions require students to adjust more often to new academic demands. The

faculty, for its part, must assume the burden of additional class administration and examinations and is compelled to prepare for the next term as soon as the preceding session has ended.

3. A sense of community is enhanced by a stable population most of whom are in residence during both terms rather than by a variable distribution of students in each of three or more terms.

4. Summer is the traditional time for vacation. Children are home from school and both faculty and students ordinarily prefer this period to any other time for relaxation and travel.

5. Approximately 80 percent of all undergraduates "worked for pay" for a month or more during the summer of 1971. (Table 4.7) Temporary employment is reputedly easier to obtain during this season because regular employees go on vacation. A system which required undergraduates to attend class during the summer months might result in economic hardship for many and an increase in the student-aid budget of the University.

Despite the advantages of the semester system there are times when a particular educational policy makes other structural arrangements preferable. These include the following:

1. Institutions which are organized on quarter or three-term systems or which append a summer session to the regular academic year may do so in order to permit students to "accelerate." Obviously, undergraduates who each year remain in residence for consecutive quarters, for example, can earn more credits and complete the requirements for a degree in less time. However, as we have indicated in earlier sections, the Commission has no plans to propose a three-year program as the norm nor do we believe that a substantial number of people wish to accelerate. There is, thus, no compelling reason to extend the school year for this purpose. In any event, an extended period of study without intervening periods for intellectual and spiritual renewal deadens the spirit and predictably creates high levels of intellectual fatigue.

2. An increasing number of liberal arts colleges and some universities have adopted the so-called "January term," a four-week period during which students may undertake a variety of projects, engage in independent study, take short courses, do field work off campus, or otherwise carry on activities which are not possible in the two longer terms. The Commission regards four weeks as too short a period to be used very productively and believes that the energies of administration, faculty, and students might better be employed in other ways. The "January term" may have greater value in institutions which have limited provision for independent work but it is in this respect inapplicable to Princeton's needs. Moreover, to the extent that an abbreviated term is a useful time

for short courses, the same thing can be achieved and more effectively in six-week half-courses (See Chapter 5) which can be offered during the school year.

3. Perhaps the most common reason for adopting some form of year-round operation is related to an increase in enrollment which may occur for a variety of reasons including the decision on the part of previously single-sex institutions to admit students of the other sex. If the increased size of the student body exceeds the capacity of the physical plant, expensive capital investment in new facilities can be avoided by remaining in session more months throughout the school year. If the size of the College remains within the limits that we have proposed in Chapter 3 the issue of capital investment versus year-round operation will not, however, confront us in the immediate future.

Economic Aspects of Year-Round Operation

There do not seem to be, then, any compelling *educational* motives which might induce the University to depart from a semester system in which the academic year extends from September to June. Nevertheless, an institution might be tempted to enter into year-round operation for purely economic reasons. At first glance, it would seem obviously inefficient to forego additional revenues while the plant lies idle during the summer months. However, this seemingly self-evident proposition would hold only if marginal revenues exceeded marginal costs, an outcome which in the case of Princeton is by no means certain.

It is beyond the Commission's mandate to conduct a full-scale analysis of the economics of introducing a third term. However, it is possible to indicate some of the parameters which make it doubtful that any such innovation would have desirable economic consequences.

We may begin by assuming that Princeton, like some other institutions, would require its students to enroll in the summer term at least once in the course of their undergraduate careers and to take a leave from the University during one "standard" term. Thus, it would be necessary to increase the size of the entering class if the undergraduate population in the fall and spring terms were to be maintained at about the level of our present physical capacity, let us say, 4400. The actual number required may be calculated by dividing the combined desired enrollment for the fall and spring terms by the number of terms each student would be in residence ($X = \frac{8800}{7}$), an operation which yields a figure of about 1260 students in each freshman cohort. Since every student would attend the compulsory summer term sometime during his college years the average enrollment in the third term would also be 1260 and the total size of the College would increase to about 5040.

The additional 1260 students would, of course, contribute tuition (minus student-aid) and they would pay charges for the use of dormitories and dining facilities. According to preliminary estimates by the Department of Dormitory and Food Services, the financial gain would probably be modest. As a matter of policy, dining services are operated essentially on a non-profit basis and the costs of dormitory repair and maintenance occasioned by year-round operation might well neutralize much of the economic gain from additional rentals. The revenue derived from tuition and charges must, in any case, be measured against (1) capital, (2) operating, (3) academic, and (4) organizational costs:

1. Summer operation would entail *capital investment* in the form of expenditures for the installation of air conditioning in classrooms, laboratories, office buildings and other facilities. According to a study conducted by the Office of the Provost in 1971 the cost of installing air conditioning and increasing the capacity of the University's water plant to meet the needs of a summer population of about a thousand students would be in excess of $5,000,000.

2. The most substantial increase in *operating costs* would involve expenditures for academic and general administration required by the summer population and the appreciably larger student body. Virtually every unit would require extra personnel especially the offices of the Dean of the College, the Registrar, the Controller, Admissions, and the Bureau of Student Aid. Pending further study it is difficult to know whether an expanded administrative complement could be housed in the buildings they now occupy but it seems probable that some new construction would be necessary.

3. The *academic costs* of operating an additional term would be governed by the same variables that apply to educational costs throughout the year: the number of students enrolled, the menu of courses offered, the required course load, average class size, distribution of faculty by rank, etc. The University could achieve substantial economies in the summer, as in other terms, by providing students with a more limited selection of courses and by offering instruction primarily in large lectures, unguided independent study or other means which exert a relatively modest claim on faculty resources. If, on the other hand, the range of courses offered to a much smaller student population in the summer (about one-third as many as when the campus is operating at full capacity) was roughly of the same order as in the normal school year, and the same pedagogical mix prevailed, then the average size of classes would be much smaller and the faculty-student ratio would be correspondingly higher.

The summer term would thus be financially advantageous only if Princeton were willing (1) to suspend its long-standing commitment to a rich course menu and extensive small group instruction or (2) to increase markedly the summer enrollment and hence the total size of the student body. However, even a very modest rise in the summer population of as many as 90 students (from 1260 to 1350) would require an identical increase in the size of the entering class, and a total undergraduate complement of 5400. This number would exceed acceptable limits because (1) the enrollment of 4725 ($Y = \frac{1350x7}{2}$) during "standard" terms would exceed the physical capacity of the plant and additional capital investment would be required; and (2) most of the arguments against a substantial expansion of enrollment that were advanced in the previous chapter do not lose their force simply because students are distributed over three terms. The increase in departmental majors, the unwieldy problem of supervising independent work for so many, the reduced capacity to know students on an individual basis—all of these would threaten the excellence of a Princeton education and endanger that sense of community which is among the most important ingredients of the Princeton experience.

4. The *organizational costs* of summer operation are considerable. Year-round operation would preempt time that is now used by the University administration for special studies, planning, and preparation for the next year. The deans, departmental chairmen, and others would either lose the opportunity to use the summer months for these valuable functions or be compelled to limit their participation in the day-by-day activities of the University for a substantial part of the entire year. Indeed, it would probably become necessary to establish a parallel administration specifically for the summer term, a step which might well result in unacceptable levels of bureaucratization and diffusion of authority.

In sum: Although we urge the Office of the Provost to undertake further and more detailed study of the economic consequences of year-round operation, our own preliminary analysis of the relationship between marginal revenue and marginal cost leaves us highly skeptical that there would be substantial economic benefits unless, perhaps, if movement to a year-round operation were accompanied by fairly radical changes in teaching methods (i.e. elimination of small classes, precepts, and seminars) which would increase productivity but seriously threaten quality. Moreover, even if the economic picture looked different there is a real question whether anything less than an extraordinary increase in revenue could outweigh the educational costs of substantially increasing the size of the student body at this point in time or of relinquishing all the advantages of the present system to which we alluded in the early paragraphs of this section.

In the light of the reasons stated in the previous paragraphs the Commission recommends *the retention of the present semester system which begins near Labor Day and ends in the late spring.*

THE ACADEMIC CALENDAR

The questions to be answered with respect to the academic calendar are: What shall be the total length of each term? When shall it begin and end? What constitutes the optimal distribution of time as between classes, reading and examination days, and periods of recess?

In dealing with these issues it would be helpful to review the salient characteristics of the current academic calendar. The year begins in the second week in September with a freshman orientation period and ends some 38 weeks later after Commencement in early June. The date for the beginning of fall classes as fixed by the *Rules and Procedures of the Faculty* falls on the second Monday after Labor Day and ends some nineteen weeks later in the third week in January after the conclusion of final examinations.[3] After an intersession break of one week, spring classes begin the first week in February and end in early June when final examinations have been completed. The calendar for the entire academic year accommodates 24 teaching weeks, three weeks for final examinations, and about 25 days for reading periods. There is provision for about six weeks of recess: four days at Thanksgiving, about three and one-half weeks beginning in mid-December, an intersession, and one week in the spring.

This calendar has many desirable features. The year begins shortly after Labor Day without encroaching on this holiday which traditionally marks the end of summer and the beginning of psychological readiness to start a new season of academic work. It ends early enough in the spring for most students to find good summer employment and permits a sustained period during which the faculty can pursue its scholarly work. The time span from September to June also makes it possible to arrange for a full program of fall, winter, and spring intramural and intercollegiate athletics. It is a generally satisfactory calendar which allows generous time for all academic and extra-curricular activities without exerting excessive pressure on either students or faculty.

The present calendar also has one feature that is perceived generally to be disadvantageous though not entirely so. Between the interruption of classes (December 10-17) and the last day of the term (January 29-February 4) there is a seven-week long "lame duck" interregnum which includes the winter recess, some classes, a reading period, and final examinations. This arrangement has two opposite and equally undesirable consequences. For many students the final lecture and the departure for the Christmas holiday is psychologically the end of the semester. Many report that upon return to campus "it is hard to get up for the game." For others, the winter recess which might be an unencumbered time for relaxation and reflection is instead merely the beginning of the most tense period of the term since term papers and final examinations must be confronted *en bloc* in early January. At the same time although the present situation does seem disadvantageous insofar as it maintains a break at a very awkward point of the term it is also the case that the additional time provided by the Christmas vacation also allows many students to catch up on course work, take more time with papers and preparation for examinations and so forth. Whatever the disadvantages of the "lame duck" period it is also a valuable gestation time.

The basic drawbacks of the existing calendar could be overcome by starting somewhat earlier in September and ending the first semester just before Christmas. This change would make the fall term a continuous unit similar to the present spring term and it would make possible a "genuine" vacation between semesters, a recess which could be used by students for academic purposes as well as relaxation. Finally, a scheme of this kind would allow us to begin the spring term a little earlier and, therefore, to come to the end of final examinations at the latest by the end of May rather than in early June. Any such modification in the schedule would entail no change in the present number of teaching weeks per term or any significant departure from the amount of time devoted to reading periods and examinations, or the winter recess; it would merely alter the sequence of these events.

Ending the First Semester Before Christmas: Trade-offs and Compromises

The merits of an altered calendar would be balanced by some disadvantages. The following diagram illustrates the nature of (1) several kinds of constraints on developing an academic calendar that ends the first semester before Christmas, (2) their undesirable consequences, and (3) available remedies.

Characteristics	*Negative Consequences*	*Remedies*
1. First semester would begin earlier in September than at present.	1. Summer vacation ends earlier. 2. May interfere with summer employment opportunities in late August and around Labor Day. 3. May conflict with the meetings of some professional associations traditionally held in early September.	Begin fall term as much after Labor Day as possible.

Characteristics	*Negative Consequences*	*Remedies*
2. The elapsed time between the beginning and the end of the fall term is shorter than at present although there would be the same number of days devoted to examinations and reading periods. The reduction of the total number of weeks in the semester would result from the fact that the Christmas vacation would be scheduled after, rather than during, the term.	Increased pressure to maintain the pace of study, a problem that may present special difficulties especially for freshmen. There would be diminished opportunity to compensate for past failings.	Introduce one-week mid-term recess in the fall term in which no classes would be scheduled and students would have time to catch up or even get ahead in their work as well as for relaxation.
3. Shorter interval between the end of classes and final examinations in the fall term.	1. Proximity to final examinations may lead students to use the entire reading period to study for final examinations rather than for its intended purpose. 2. Instructors who continue to meet classes during reading period may hesitate to do so in order to allow students more time to study, write papers, etc.	Lengthen reading period.

As it turns out each of the remedies—a later start, a mid-term break, or a longer reading period—are individually effective but each is at cross-purposes with the other. Tables 4.8 through 4.11 all assume twelve weeks of instruction but describe different approaches to completing the semester by late December. The various trade-offs and compromises involved can best be perceived by consulting the diagram on the next page.

In deciding which of four versions of the calendar yielded the greatest benefits and the least costs the Commission was moved by two primary considerations:

1. Classes should begin in the fall after Labor Day. A starting date for the first semester which was scheduled as early as the last week in August would disrupt family vacations and interfere with summer employment.

2. A one-week break in a fall term ending in December is essential and would serve the same functions as the present spring recess.

A calendar which violates either of these stipulations is, in our judgment, unacceptable even if it provides for a generous interval between

Alternative Modes of Completing the First Semester Before Christmas, Academic Year 1973-74

		—Length of Reading Period—	
		Ten Days	Seventeen Days
Recess Scheduled (one week)	Freshman Orientation Begins	I August 29	II August 22
	Classes Begin	September 4	August 28
No Recess Scheduled	Freshman Orientation Begins	III September 5	IV August 29
	Classes Begin	September 11	September 4

the end of fall classes and final examinations, (Cells II and IV) or for a comparatively late starting date (Cell III). By the process of elimination we arrive at the version of the calendar described by Cell I which taken altogether seems the most attractive of all the alternatives. The summaries on pages 143 and 144 show the most important features of this calendar and how alike it is in most respects to the current schedule except for differences in the starting dates for the academic year and in periods of recess.

Freshman Orientation begins in the last days of August, classes in the fall start on the first Tuesday after Labor Day, and the end-of-the-term work in December would be more compressed but the one-week mid-term recess would help ease the pressures associated with such a schedule. According to the Director of Career Services, comparatively few students apparently now work until Labor Day; those who do might experience some financial loss which may be balanced by the employment opportunities which emerge from the earlier end of the academic year in the spring.

Depending on the vagaries of the calendar the elapsed time between the beginning of classes to the end of final examinations would be between 15½ and 16 weeks during which there would be 8-11 reading days, 8-10 days set aside for final examinations, and nine days of recess including an eight-day mid-term break and a Thanksgiving holiday reduced to one day. A month-long winter recess in which both faculty and students would be unencumbered by formal duties connected with the academic program would follow the conclusion of final examinations. It is this recess, with its freedom from academic pressures, that is perhaps the distinctive advantage of the revised calendar over the current schedule. The University community will wish to weigh this benefit against the disadvantage of beginning earlier in September.

The Second Semester

The revised calendar for the second semester also closely resembles the current schedule except that it (1) begins in the third week of

Time Devoted to Selected Events, Academic Calendars
Current and Revised (Fall Term Ends Before Christmas)

		Current		*Revised*	
Number of Weeks, Freshman Orientation Period to Commencement			38		39
Number of Weeks, First Day of Classes to End of Final Examinations					
	Fall Term	19		15½—16*	
	Spring Term	17		18	
	Total		36		33½—34
Number of Weeks, Teaching					
	Fall Term	12		12	
	Spring Term	12		12	
	Total		24		24
Number of Days, Reading Period					
	Fall Term	11		8-11*	
	Spring Term	15		15	
	Total		26		23-26
Number of Days, Final Examinations					
	Fall Term	9		8-10*	
	Spring Term	12		12	
	Total		21		20-22
Number of Days, Recess					
	Fall	0		8	
	Thanksgiving	4		1	
	Winter	24		30	
	Intersession	8		0	
	Spring	8		15	
	Total		44		54

* The first day of fall classes is scheduled between September 2 and 8. The total weeks of the term, reading period, and final examination days vary with the starting date.

Selected Events and Dates, Current and Revised Academic Calendars 1973-74

Selected Events	*Current Calendar*	*Revised Calendar*
Beginning of Freshman Orientation Period, Fall Term	September 11	August 28
Beginning of Classes, Fall Term	September 17	September 4
Fall Recess Begins		October 14
Fall Recess Ends		October 21
Beginning of Winter Recess	December 12	December 22
End of Winter Recess	January 4	January 20
Beginning of Classes, Spring Term	February 4	January 21
Beginning of Spring Recess	March 23	March 3
End of Spring Recess	March 31	March 17
Beginning of Final Examinations	May 23	May 13
End of Final Examinations	June 1 (June 5)*	May 25
Commencement	June 11	June 4

* An examination period of two and one-half weeks is prescribed by the Rules and Procedures of the Faculty and is thus listed in the Undergraduate Announcement. However, only two weeks of this period are actually used for final examinations.

Selected Events and Dates, Revised Academic Calendar, by Earliest and Latest Beginning of Academic Year Fall Term

Selected Events	*Earliest Date*	*Latest Date*
Freshman Orientation Begins	Tuesday, August 26	Tuesday, September 1
Freshman Orientation Ends	Saturday, August 30	Saturday, September 5
Registration Period Begins	Friday, August 29	Friday, September 4
Registration Period Ends	Saturday, August 30	Saturday, September 5
Classes Begin	Tuesday, September 2*	Tuesday, September 8†
Week of Mid-Term Examinations	Monday, October 6	Monday, October 12
Fall Recess Begins	Sunday, October 12	Sunday, October 18
Fall Recess Ends	Sunday, October 19	Sunday, October 25
Thanksgiving Day Recess	Thursday, November 27	Thursday, November 26
Classes End	Saturday, November 29	Saturday, December 5
Reading Period Begins	Sunday, November 30	Sunday, December 6
Reading Period Ends	Tuesday, December 9	Sunday, December 13
Final Examinations Begin	Wednesday, December 10	Monday, December 14
Final Examinations End	Saturday, December 20	Tuesday, December 22
Winter Recess Begins	Sunday, December 21	Wednesday, December 23
Winter Recess Ends	Sunday, January 18	Sunday, January 24

* Classes which normally meet Monday meet Saturday, September 6

† Classes which normally meet Monday meet Saturday, September 12

January rather than early in February, (2) includes a two-week rather than a one-week midterm recess, and (3) provides for an earlier end to the academic year by advancing the start of the second term by two weeks. Indeed, the total length of the academic year could be reduced even more by shortening the periods of recess, or reducing the length of the second semester to correspond to the number of weeks in the first term. After careful consideration of all of the factors involved the Commission finds itself opposed to either of these possible changes. We were moved by the following considerations:

1. The constricted character of the first term's calendar seems to be a tolerable educational cost in view of its compensatory advantages but it is not a model that should be duplicated merely for purposes of symmetry or for any other non-educational reason.

2. By early spring, after mid-term examinations, both faculty and students require some moratorium on classes and a one-week recess has for a long time met this need. If a second week of recess were added, seniors and juniors, particularly, could make good use of this time as they approach the point when they are required to submit their theses or other independent work. This additional interlude can be granted while still completing the academic year somewhat earlier than at present. The calendar is thus responsive both to academic concerns and to the felt needs of students who contend that the end of final examinations (May 26-May 31) and Commencement (June 6-12) are now scheduled too late for advantageous entry into the summer job market.

Selected Events and Dates, Revised Academic Calendar,
by Earliest and Latest Beginning of Academic Year
Spring Term

Selected Events	*Earliest Date**	*Latest Date*
Classes Begin	Monday, January 19	Monday, January 25
Week of Mid Term Examinations	Monday, February 23	Monday, March 1
Spring Recess Begins	Sunday, February 29	Sunday, March 7
Spring Recess Ends	Sunday, March 14	Sunday, March 21
Classes End	Saturday, April 24	Saturday, May 1
Reading Period Begins	Sunday, April 25	Sunday, May 2
Reading Period Ends	Sunday, May 9	Sunday, May 16
Final Examinations Begin	Monday, May 10	Monday, May 17
Final Examinations End	Saturday, May 22	Saturday, May 29
Class Day	Monday, May 31	Monday, June 7
Commencement	Tuesday, June 1	Tuesday, June 8

* Leap Year. In other years spring recess would begin March 1 and every other date would similarly change so that Commencement Day would fall on Tuesday, June 2.

3. Any further compression of the academic calendar beyond that proposed would seriously jeopardize the spring program of intramural and intercollegiate athletics. Team sports end before the final examination period which according to the revised calendar as proposed could begin as early as May 10, one week earlier than at present. The loss of a week for scheduling athletic contests would create difficulties, which according to the Director of Athletics, would nevertheless be manageable. However, since poor weather imposes inelastic constraints on the time available for spring sports, the subtraction of still one more week from the length of the semester (May 3) could well have the effect of forcing the withdrawal of the men's teams in baseball, golf, lacrosse, and tennis from the Ivy League.

It should be noted that the new calendar, like the current schedule provides two weeks for a reading period and an equal interval for final examinations. If three days were borrowed from the reading period for an "Academic Festival" to which the Chairman of the Commission alluded in his Interim Report the days immediately following the end of classes could be devoted to a student-organized celebration of the arts and sciences, a cross between an academic meeting and an arts festival. A main staple would be papers delivered by seniors based on the best theses. A full roster of other events would also be scheduled including nationally prominent speakers, an endowed debate, art exhibits and dance recitals, and presentations by student theater groups. The entire University community—students, faculty, administration, alumni, and parents—would be invited to attend, some as participants and others as members of the audience. It seems fitting that educational institutions which are the site of proms and games should also celebrate the products of mind and imagination.

Economic Effects of the Proposed Academic Calendar

The proposed new calendar would have economic consequences both for the University and the students. The institution would incur increased expenditures in the operation of the library and the Department of Athletics. The academic year would be about one week longer than at present and the extra cost of manning the circulation and reserve desks for an additional twelve evenings would be approximately $4,000. During each of the fall, winter, and spring recesses the library would remain open until midnight, but the circulation and reserve desks would close at five o'clock as they do now during academic breaks.

The increased cost for the Department of Athletics would arise because some students participating in intercollegiate athletics would remain on campus during the additional weeks in the fall and spring and also during some portion of the winter recess. Since meal contracts are not in force during such periods the University would assume responsibility for providing meals for members of teams. In the past, various "Friends of Sports" groups have defrayed such expenses. During the election break of 1972, for example, they contributed about $19,000. If this level of generous support is maintained the University's own liability would be limited to about $20,000.

The Department of Dormitory and Food Services would realize some savings under the proposed calendar because there would be 10 fewer serving days for food contracts than under the current schedule. This would represent a potential savings of about $50,000. This year the Priorities Committee recommended that the Department of Dormitory and Food Services be required to operate at a specified level of efficiency. The recent dramatic rise in wholesale food prices has threatened the Department's ability to meet this standard under existing rates. The potential savings arising from the adoption of the revised calendar would help the Department of Dormitory and Food Services operate at its prescribed level.

Students would be financially affected by changes in the calendar mainly because of the periods of recess. Since there would be seven such weeks of recess about one-half week more than at present, students who remained on campus would experience an increase in meal expenses of about 15 to 20 dollars. It may also be that the proposed length of the recesses and their distribution throughout the academic year—fall, winter, and spring recesses of one week, one month, and two weeks, respectively—might encourage more travel than at present and result in greater outlays of funds.

In sum: The economic consequences of the revised calendar to students are difficult to assess but it would appear that they are manageable. The chief identifiable costs to the University are between $20,000 and $40,000 for the athletic program and $4,000 for the library. These are not negligible sums and they should be given due weight in considering the relative merits of the revised and current calendars. The Commission has balanced the benefits and costs of the new calendar and we think its advantages warrant additional expenditures and an earlier starting date for the academic year. We have consulted the Dean of the Graduate School who believes that the schedule is feasible although the Graduate School will, of course, wish to explore the full ramifications of the projected calendar in the coming months.

In view of all of the factors mentioned in the previous discussion we recommend that *the University should consider adopting a new academic calendar which, like the present schedule, shall provide for at* *least twelve weeks of classroom instruction per term and is otherwise essentially unchanged except that:*

1. *The first term of each academic year shall end in late December and the College shall be in recess for the one week following the week of mid-term examinations.*
2. *The College shall be in recess for approximately one month following the conclusion of the first semester.*
3. *The second term shall extend into late May and the College shall be in recess for the two weeks following the week of mid-term examinations.*

VARIATIONS IN THE RHYTHM OF TIME AND MOTION

The Commission has considered a number of plans for introducing additional flexibility into what we have called patterns of "time and motion." An undergraduate population with such varied aptitudes, capacities, and ambitions should not be obliged to march in identical gait. Deviations from ordinary patterns of movement in the educational system may be classified as (1) deferment, (2) acceleration, (3) redistribution of time, and (4) continuing education. The first refers to all those mechanisms which allow students to postpone entrance to the next level of education; the second refers to all provisions which permit undergraduates to by-pass one level in order to graduate in less time; the third refers to various means by which students may satisfy some academic requirements in off-campus activities while at the same time earning their degrees during the usual four-year period; and the last refers to schooling for older adults.

Patterns of Deferment: Before and After Matriculation

INTERRUPTION OF STUDIES AFTER SECONDARY SCHOOL

By the time that some students have completed secondary school and successfully negotiated the college admissions hurdles many are weary of school and wish to postpone their matriculation to the next level of education. Princeton permits freshmen to defer entrance for one, two, or three years and while those who avail themselves of this opportunity are few their number has increased somewhat in recent years: 25 in the class of 1970, 31 in the class of 1975, and 26 in the class of 1976. The Undergraduate Survey included a question as to whether such students found the interruption between secondary school and college beneficial. Of 48 students in the sample, 31 students responded in the affirmative. (Table 4.12) One-fourth of those who entered the University directly from secondary school reported that, in retrospect, they, too, would have benefitted from delaying their entrance into college. (Table 4.13)

We suspect that the deferment pattern will become increasingly popular as the secondary school curriculum becomes more demanding and as competition for quality colleges becomes increasingly intense.

INTERRUPTION OF STUDIES WHILE IN COLLEGE

In recent years the neologism "stop-out" has been invented to refer to those students who interrupt their education with the intent to return. During the academic year 1971-72 there were 127 leaves of absence, including students who voluntarily withdrew during the term. These figures may be compared with the five-year period from 1965-66 to 1969-70 when the average number of leaves of absence was 56, or only about one-half as many as in the most recent year. Even taking into account that for much of the earlier period the military draft induced many undergraduates to remain on campus and that the size of the College has increased, the doubling of the percentage of those who voluntarily take leave is of considerable interest and significance. Moreover, there is reason to believe that this trend will continue. Fully 28 percent of the classes of 1973, 1974, and 1975 report that if they had "complete freedom of choice" they would take a leave in the ensuing academic year. The proportion among sophomores (39 percent) is particularly high and is one of the few direct lines of evidence confirming a sophomore "slump." (Table 4.14)

In our view, the interruption of schooling does not necessarily imply any discontinuity in education. "Schooling" involves the orderly transmission of a body of knowledge, skills, and values; "education" refers to any experience, on or off campus, which enables people to learn more about nature or human nature. Education in this more inclusive sense is virtually coextensive with life.

The failure to heed this distinction can have mischievous consequences. It can result in the collective hubris which induces a university to sponsor all manner of activity which can be plausibly defended as education, or it can lead to the equally mistaken conviction that the campus exhausts the universe. The university is the keeper of the books, it adds to their number, and transmits their treasure. It also creates a setting for the development of self-knowledge, moral standards and a sense of community. Nevertheless, there is more to be learned about heaven and earth than can be found in the classroom.

Under the circumstances a young man or woman who seeks more direct contact for a limited period of time with a wider world is entitled to the support of the institution. The Office of the Dean of the College, in fact, has been consistently sympathetic to applications for voluntary leaves. The Commission commends this approach and urges that it continue.

Patterns of Acceleration: Early Admissions, Advanced Placement, Undergraduate Enrollment in Graduate Courses

EARLY ADMISSIONS TO COLLEGE

Extensive discussions with teachers and parents, the Undergraduate Survey, and a study conducted jointly by the Commission and the Educational Testing Service suggest rather strongly that substantial numbers of secondary school students are by the end of the junior year academically and emotionally prepared to enter college. By the conclusion of the eleventh year many gifted students have met all legally mandated requirements for the diploma, have exhausted the intellectual resources of their secondary schools, and are awaiting still another year of sullen confinement. This is by no means the case for all, or even a majority, but surely substantial numbers of high school seniors would be both eager and able to begin their collegiate studies.

Tables 4.15 and 4.16 include responses from a ten percent systematic sample of high school seniors who scored 600 or higher on the SAT Verbal test administered in November 1971. Nearly three-fifths of this group believed that they were "academically ready" and about a third thought that they were "emotionally ready" to enter college after the junior year. Responses by Princeton undergraduates summarized in the same tables yield findings of similar direction and magnitude.

High school students are, of course, not the final authorities on their capacities nor may we assume that most who were eligible would actually apply for early admission. Surely, despite their self-confidence, such students would upon their arrival on campus and for a long period thereafter require extensive guidance and supervision. The results should, however, prove gratifying as they already have in the case of a limited number of local secondary students who now attend University classes. Accordingly, the Commission recommends that *the College should make an effort to identify candidates for admission who are by the end of their eleventh year of schooling prepared academically and emotionally to begin college work. Special advising and counselling mechanisms should be established for such students particularly during the freshman year.*

ACCELERATION AFTER ADMISSION TO COLLEGE: THE THREE YEAR DEGREE

Princeton offers advanced standing through advanced placement as the standard method of reducing the length of study. In the language of the Undergraduate Announcement, "Princeton grants advanced placement in all areas of study. This policy is designed to give full recognition to college level academic attainment prior to matriculation and to encourage the individual student to progress in his strongest disciplines. . . . A student who has been granted sufficient advanced placement may ask the Committee on Examinations and Standing for regular status as a sophomore in his first year of residence, or as a junior in his second year of residence (after completing his first year as a freshman). To be eligible for graduation in three years, a candidate for the A.B. degree normally must have been granted advanced placement in at least three subjects appropriate to his intended plan of study, including foreign language and/or science."[4]

The number of students who have sought this option has been consistently small. In the last seven graduating classes, from 1966 to 1972, a total of 266 students applied for advanced standing, 85 such applications were approved, and of this number somewhat more than half actually graduated in three years. (Table 4.17) In the most recent graduating class only ten completed the three-year program. The group of students who receive their degrees in less time is generally composed of undergraduates from suburban public schools who do not receive financial aid and who are planning graduate education, usually medicine or law. Although we anticipate some growth in the number who seek advanced standing as tuition rises and graduate support declines, there is no strong current evidence of any extraordinary interest among Princeton students in this method of reducing the length of formal study.

UNDERGRADUATE ENROLLMENT IN GRADUATE COURSES

One method of introducing flexibility into the system of time and motion is to permit undergraduates to remain on site while at the same time attending graduate classes. There would be considerable advantage to both the Graduate School and to the College if undergraduates were admitted to graduate courses in greater numbers than they are at present. In 1971-72 there were 498 undergraduate registrations in 268 graduate courses, but the number of students may actually be smaller because of multiple enrollments. This is a respectable number given a senior class of approximately eight hundred. The Administration has always been sympathetic to this policy but some departments, nevertheless, seem to regard undergraduate and graduate teaching as entirely separate realms. (Table 4.18) In fact, graduate students who have just recently acquired the bachelor's degree are not necessarily better prepared for graduate seminars than qualified upperclassmen who are only one or two years younger.

There are also practical considerations. With somewhat diminished graduate enrollments, undergraduate participation can help keep graduate seminars at a reasonable size. Such participation may also be a more efficient way to meet the needs of upperclassmen than creating special senior seminars. In making these suggestions the Commission assumes that graduate seminars will remain small, perhaps no larger than ten or 15 students, but that exceptionally well-qualified undergraduates might be included among this number.

Accordingly, the Commission recommends that *qualified upperclassmen should be encouraged to enroll in any graduate course for which they are adequately prepared subject only to the strength of their commitment and considerations of class size.*

Partial Advanced Standing: Flexible Patterns, Academic Standards, and the Four Year Degree

The advanced standing formula (a score of three or better in three Advanced Placement examinations) is used by many leading institutions, but credit toward early graduation is granted at Princeton only after competence in a subject has been established through examination, approved by the Committee on Examinations and Standing, certified by the appropriate instructional department, and authorized by the Dean of the College after careful review of each case. At the end of this process the student is either granted advanced standing equivalent to two semesters of college work or he remains at his grade level. There is no immediately apparent reason why advanced standing equivalent to one semester could not be established by procedures now in use. Since many departments already used advanced placement examinations for diagnostic purposes and excuse students from taking certain courses on the basis of their demonstrated command over college-level work all that would be required would be a modification of current regulations to permit such work to reduce the number of courses required for the degree.

Depending on the amount of advanced standing granted, a student could elect any of the following options:

1. By enrolling in additional courses beyond the normal course load he could in exceptional circumstances graduate in three years.

2. By "earning" through advanced placement the equivalent of a full semester he would be free during one semester in four years to do (a) approved independent work, (b) to engage in off-campus study, or (3) simply take a voluntary one-term leave; and,

3. By qualifying for less than one semester's advanced standing he might still become eligible for independent study on or off campus during one semester through some combination of credits earned in optional additional courses through his approved project.

The introduction of partial advanced standing would have special significance for off-campus study:

1. It would enable more students to try irregular patterns of education, to do more academic work during some periods and less during others;

2. It would be responsive to the desire on the part of many students to leave the campus for a brief interval without requiring them to be gone for an entire year and out of phase with their class, and

3. The provision that students must draw on reserves earned as advanced placement credits or additional courses would remove some of the uneasiness about the academic status of off-campus experiences. These may be as valuable, on occasion even more instructive than more orthodox forms of education, but the two are not really commensurate. A plan whereby students can do more academic work in residence as a condition for undertaking independent off-campus activity could turn out to be a very satisfactory modus vivendi. Accordingly, the Commission recommends that *the College develop guidelines that modify current policy in order to permit partial advanced standing through advanced placement for units of time that are equivalent to less than a full year of academic work (ordinarily one semester).*

Continuing Education

There is increasing recognition that higher education should not be the exclusive privilege of young adults between the ages of 18 and 22. The bachelor's degree should be viewed as merely one point in the continuing process of education which continues for a lifetime. Learning beyond graduation should be conceived as a form of self-fulfillment and much of it will be individual, informal, and self-directed. It may at some point also entail a return to an organized regimen of study. Moreover, it is evident that as knowledge increases, as jobs become more complex, and a growing number of people in the labor force pursue discontinuous career lines the return to school may become a condition for maintaining a requisite level of occupational competence.

The return to education in the middle years and beyond is equally important for people who either did not attend college or did not complete the requirements for the degree. Such persons, no less than college graduates, have need of the intrinsic benefits of education and even more than those with better official credentials they will require additional schooling in connection with their careers. Of all groups in the population, women have perhaps the most conspicuous need for education in their mature years. A smaller proportion of women than men enroll in college and once having received their degrees they are much more likely to withdraw from the labor force to marry and care for their families. An increasing number of such women once their children have grown older, may wish to begin or resume a career or simply pursue education for its own sake.

The Alumni College, which has been in existence since 1970 is one mechanism through which Princeton meets the needs of its own graduates. Each year, immediately after class reunions the Alumni College sponsors a week-long session devoted to such themes as "The Challenge of a Deteriorating Environment," "A Thriving Population and a Shrinking World," "America: Culture of Change," and "The Medieval Origins of Modern Society." The Alumni College has experienced a consistently increasing enrollment and in 1973 it has been compelled to restrict attendance to 175 Princeton alumni and their friends. This year, the Alumni College will also convene at a site in California marking the first time that its sessions have been held off-campus. During the past academic year the Alumni Club of Washington has organized a series of lectures which are taught by Princeton faculty. These are all very welcome developments since they emphasize that the intellectual bond is at the core of all the other relationships between the Alumni and the University.

The College as part of its more general policy to seek a more diverse student population has admitted ten older students who are now regular degree candidates and three of these are enrolled on a part-time basis. As we have indicated earlier the presence of such people on campus promotes understanding between the generations and it would be especially beneficial if some older adults were to serve as resident advisers.

Mary I. Bunting, Special Assistant to the President, has developed a series of proposals on several aspects of continuing education which will be submitted to the University community in the late spring and will help clarify the appropriate role of the College in this very important area.

Impact of Variations in the Rhythm of Time and Motion on the Stability of the Campus Population

In proposing increased flexibility in the existing policies on leaves of absence and advanced placement we are, of course, concerned about their effect on the overall stability of the campus population as it influences the size of the entering class, the number of transfer students admitted, and the overall size of the campus population. Accordingly the Commission tried to obtain such estimates through a computer simulation of the composition of the student body, term by term, for the next forty years with the proposed policies in effect.

This simulation was based on the following list of general assumptions based on the best currently available trend information and, where such information is not available, on informed guesses:

Ninety-two percent of the student body will complete their undergraduate education with the traditional eight semesters of academic work; five percent of the student body will be granted two semesters of advanced placement, and will complete their undergraduate education with six, rather than eight, semesters of academic work; the remaining three percent of the student body will be offered and accept the proposed new one semester of advanced placement credit, and will complete their undergraduate education with seven, rather than eight, semesters of academic work on campus.

It is further assumed that all students (even those with various types of advanced placement) must be in residence on campus during the fall term of their entering year and during both terms of their final year. All students must also complete their academic program in a spring term—i.e., no mid-year graduation is permitted.

Still another set of additional assumptions were made about the patterns of leave of absence in all three groups:

Of those students who complete their education in the normal eight semesters (92 percent of the student body), 13 percent are assumed to take two semesters of consecutive leave. These leaves will occur in equal proportion after the second, third, fourth, fifth, and sixth semesters of academic work. An additional five percent of this group will leave the University without ever returning to graduate. No other students in this group take leaves.

The 13 percent of this group that does take two semesters of consecutive leave will require five calendar years to graduate although they will actually spend only eight semesters on campus. All of the remaining members of this group who graduate will complete their education in the traditional four calendar years, spending eight consecutive semesters on campus.

Of those students who are offered and accept the traditional two semesters of advanced placement (five percent of the student body), 13 percent are assumed to take two semesters of consecutive leave. These leaves will occur in equal proportion after the second, and fourth semesters of academic work. An additional five percent of this group will leave the University without ever returning to graduate. All other students in this group take no leaves.

The 13 percent of this group that does take two semesters of consecutive leave will require four calendar years to graduate since their two semesters of advanced placement is counterbalanced by their two semesters of leave. None of the remaining members of this group who graduate will take a leave and they will thus graduate in three calendar years.

Of those students who are granted partial advanced standing of one semester advanced placement credit (three percent of the student body), *all* are assumed to take one semester of leave. These leaves will occur in equal proportion after the second, third, fourth, and fifth semesters of academic work. Thus, all members of this group will graduate in four calendar years, but spend only seven semesters on campus.

These assumptions were applied to a model of the University with a beginning on-campus fall semester population of 4400 students. This model was simulated in such a way that the size of the entering class would range between 1000-1125 students and the annual desired number of transfer students would be approximately 85.

In simulating the effect of the new leave and advanced placement policies on a University of 4400 undergraduates for a forty-year period, three major areas were monitored closely:

First, would the liberalized policies require significant fluctuation in the size of the entering class in order to stabilize the size of the on-campus student body?

Second, would the new policies require the number of entering transfer students to vary greatly each year so as to stabilize the size of the on-campus student body?

Third, once the academic year begins, would there be a significant drop in the number of on-campus students between each year's fall and spring term?

Fourth, would the total undergraduate population (both those on campus and on leave) exceed tolerable limits?

The results of the simulation indicate that none of these four areas show any great probability of becoming unduly troublesome if the new policies were implemented. (Table 4.19) They reveal that to maintain a constant beginning fall semester population of 4400, the size of the entering class would average 1089 students and vary between a range of 1046-1125 students. Also, the number of transfers admitted annually would remain almost perfectly constant at 85 with a variation of less than 10 students in one or two years. The spring semester of each year would average 59 students less than the fall semester (i.e. 4341) with the worst case being 82 students below the fall semester (i.e. 4318). Finally, the total College population (all students on campus plus all students on leave) would vary between 4596 and 4666 with an average of 4634.

What instability does exist under the new policies could be largely removed by relatively modest adjustments in leave and admissions policies for freshmen and transfers and by admitting more students from other institutions to spend one semester at Princeton. If the initial assumptions of this simulation are correct then flexibility and stability are wholly compatible.

SUMMARY OF RECOMMENDATIONS

1. The normal duration of undergraduate study shall remain at four years and the College should continue to provide a variety of alternatives for deferring or accelerating movement through the educational system including: (1) deferred admission to the entering class, (2) voluntary withdrawals and leaves of absence, and (3) advanced standing through advanced placement. In addition, the College should extend these options by adopting the following policies:

a. The College shall modify current policy to permit partial advanced standing through advanced placement in units that are equivalent to less than a full year of academic work (ordinarily one semester).

b. Qualified upperclassmen should be encouraged to enroll in any graduate course for which they are adequately prepared subject only to the strength of their commitment and considerations of class size.

c. The College should make an effort to identify candidates for admission who are by the end of their eleventh year of schooling prepared academically and emotionally to begin college work. Special advising and counselling mechanisms should be established for such students particularly during the freshman year.

2. The University should consider the adoption of a new academic calendar which like the present schedule includes at least twelve weeks of instruction per term and is otherwise essentially unchanged except that:

a. The first term of each academic year shall end in late December and the College shall be in recess for the one week following the week of mid-term examinations.

b. The College shall be in recess for approximately one month following the conclusion of the first semester.

c. The second term shall extend into late May and the College shall be in recess for the two weeks following the week of mid-term examinations.

CHAPTER 5

Curriculum and Pedagogy

CONTENTS

- THE CONFLICTS OF YESTERYEAR
- THE CURRENT PROGRAM
  - *Electives*
  - *Common Studies*
    - ALTERNATIVE MODELS OF COMMON STUDIES
    - THE PRINCETON SYSTEM: BASIC SKILLS AND COMPETENCIES PLUS DISTRIBUTION REQUIREMENTS
      - THE REQUIREMENT IN ENGLISH COMPOSITION
      - THE FOREIGN LANGUAGE REQUIREMENT
      - DISTRIBUTION AREAS
      - THE NATURE OF THE NATURAL SCIENCE REQUIREMENT
  - *The Area of Concentration*
    - INTERDISCIPLINARY STUDIES
    - CREATIVE ARTS
    - INDEPENDENT WORK
    - SENIOR DEPARTMENTAL EXAMINATIONS
  - *Special Programs*
- PEDAGOGY
  - *Class Size*
  - *Expanding the Pedagogical Repertoire*
    - EDUCATIONAL TECHNOLOGY
    - GAMING SIMULATION
    - LENGTH AND TIME OF COURSES
    - STUDENT-LED SEMINARS

THE CONFLICTS OF YESTERYEAR

The obligation to adopt a curriculum compels the end of agnosticism with respect to the meaning of the term "education." A curriculum is educational philosophy incorporated in a structure and the formal program of studies thus reveals some of the institution's most fundamental convictions. The institution cannot avoid, for example, taking a stand on prescription versus election, an issue that has agitated the American college since colonial times. Henry Dunster, Harvard's first president, followed the course of study of his alma mater, Cambridge University, in establishing the first collegiate curriculum in America. It incorporated the medieval seven liberal arts (arithmetic, music, geometry, astronomy, grammar, rhetoric, and logic), the Renaissance attraction to the Greek and Latin classics, and the Reformation emphasis on religious education.[1]

This curriculum, which served as the model for other colonial colleges, rested on the psychology of "mental faculties," which in its modern version is recognizable as "transfer of training." The mind, according to this doctrine, consisted of separate "faculties" such as reason, memory, imagination, attention and judgment each of which grew stronger with exercise. Drill in the classics was considered especially effective in achieving this purpose. Education consisted of disciplining the mind and educators were somewhat suspicious of free inquiry.

The basic classical curriculum was augmented during the middle part of the colonial period by offerings which reflected the thought of the *philosophes* and the English dissenting academies. The *philosophes* who appealed to human reason and natural law rather than to divine revelation were spokesmen for the power of the natural sciences. By 1750 almost all the colonial colleges were teaching the natural sciences including physics, and chemistry. Although classical languages and mathematics were prominent in the Harvard curriculum by the time of the Revolution the old Aristotelian science and philosophy had succumbed to the Enlightenment. Students were introduced to Cartesian logic, Newtonian physics, and the astronomy of Copernicus and Galileo.

The dissenting academies had almost as much impact on colonial colleges as the English universities. More intellectually adventurous than the ecclesiastically controlled universities, the academies included in their curriculum mathematics, astronomy, chemistry and physics, English prose and poetry, as well as Latin and Greek. Studies were carefully supervised, and there was a close relationship between teacher and pupil. After observing this mode of teaching during a visit to England John Witherspoon installed the tutorial system for Princeton and under President Burr the curriculum expanded beyond the classics, logic, and metaphysics, to include mathematics and natural philosophy.

In the 1760's the Princeton freshman studied Latin and Greek, and if he demonstrated early mastery of these subjects he was permitted to begin his work in the sciences. The ordinary sophomore continued with the ancient languages, and was introduced to the sciences, geography, rhetoric, logic, and mathematics. A junior studied mathematics, moral philosophy, metaphysics, chronology, physics and Hebrew if he were preparing himself for the ministry. The Princeton senior reviewed Latin and Greek classics, part of the Old Testament and all the arts and sciences. The capstone of his final year was a course in moral philosophy whose aim was "the reconciliation of reason and science with the Christian religion."[2]

The entire educational history of the nineteenth century was marked by periodic struggles between defenders of the classical curriculum and its detractors, and subsequent efforts to find an acceptable compromise to appease both factions. Thus, for example, Harvard, Yale, Dartmouth and Princeton all eventually awarded bachelor of science degrees. This reluctant concession to diversity was, among other things, intended to protect the arts degree and the classical curriculum against contamination. Such stratagems ordinarily sufficed for a brief period until the next outbreak of hostilities.

In the celebrated Yale Report of 1828 President Jeremiah Day examined the system of prescribed studies and found them good. "What subject which is now studied here, could be set aside without evidently marring the system?" The report also reaffirmed that "familiarity with Greek and Roman writers is especially adapted to form the tastes, and to discipline the mind, both in thought and diction to the relish of what is elevated, chaste, and simple."[3] The prestige of this document was for a time sufficient to protect orthodoxy at Yale and elsewhere.

The vanquished seldom accepted defeat for long. Francis Wayland's "Report to the Corporation of Brown University on Changes in the System of Collegiate Education" published in 1850 challenged the curriculum venerated in the Yale Report because it was not a viable commodity. "Our colleges are not filled because we do not furnish the education desired by the people. . . . Is it not time to enquire whether we cannot furnish an article for which the demand will be, at least somewhat remunerative?"[4] To survive, to compete with the thriving technical schools, the colleges must train the farmer, manufacturer, merchant, and mechanic as well as the theologian, lawyer, and physician; the entire community would benefit if all who so wished received training in these useful arts. Wayland's recommendations included a proposal to abolish the fixed four-year curriculum and the suggestion that "every student might study what he chose, all that he chose, and nothing but what he chose."[5] Many of these proposals actually were put into operation by the Brown Corporation in 1851. The relaxation of requirements immediately attracted students of lower academic quality, corporation and faculty were displeased and in 1855 Wayland submitted his resignation. The following year his successor raised degree and entrance requirements, and curtailed the elective system.

The most famous assault on the prescribed curriculum was undertaken by President Charles W. Eliot of Harvard during his forty-year tenure which began in 1869. "The young man of 19 or 20," said Eliot, "ought to know what he likes best and is most fit for. If his previous training has been sufficiently wide, he will know by that time whether he is most apt at language or philosophy or natural science or mathematics." The elective system would, moreover, solve the problem of maturation, since it "gives free play to natural preferences and inborn aptitudes, makes possible enthusiasm for a chosen work, relieves the professor and the ardent disciple of the presence of a body of students who are compelled to an unwelcome task."[6]

Step by step, under Eliot's leadership, Harvard abandoned prescription. All subject requirements for seniors were dropped in 1872, for juniors in 1879, and for sophomores in 1884. Requirements for freshmen were reduced in 1885; by 1894 only rhetoric and a modern language were required of freshmen, and after 1897 the one prescribed course at Harvard was a year of freshman rhetoric. The only restriction on election was the requirement that elementary courses should precede advanced offerings.

Harvard's electoral reform led to much controversy, imitation, and resistance. In the course of a debate with Eliot in 1885 President James McCosh of Princeton defended the prescribed curriculum, faculty psychology, compulsory religious instruction and class attendance, and strict supervision and discipline. He was dubious about the extent of the student's self-knowledge and the trustworthiness of his experience.

> I believe that comparatively few young men know what their powers are when they enter college . . . many imagine that they have talents which they do not possess. Fatal mistakes may arise from a youth of sixteen or eighteen committing himself to a narrow-gauge line of study, and he finds when it is too late that he should have taken a broader road.[7]

Witnessing the elective system in full operation at Harvard filled the dismayed McCosh with a sense of almost cosmic disorder:

> In Harvard there are now in no year any studies obligatory on all except a part of Freshman year studies—everything is scattered like the star dust out of which worlds are formed. . . . In Princeton a number of disciplinary branches are required, and so many are required each year to give us a central sun with rotating planets. In Nature, as Herbert Spencer has shown, there is differentiation which scatters, but there is also concentration which holds things together. There should be the same in higher education. In a college there may be, there should be, specialists, but not mere specialists, who are sure to be narrow, partial, malformed, one-sided, and are apt to become conceited, prejudiced, and intolerant. The other day a gymnast showed me his upper arm with the muscle large and hard as a mill-stone. It is a picture of the mental monstrosities produced by certain kinds of education.[*]

There was to be no final victory for either Eliot or McCosh. Harvard ultimately abandoned a system which opened the entire catalogue to choice and Princeton reluctantly allowed some degree of election. Shortly after McCosh became President of Princeton, juniors and seniors there were granted permission to elect courses—but only after they had signed up for a long list of prescribed studies: logic, psychology, mechanics, physics, natural theology, physical geography, rhetoric, astronomy, chemistry, English literature, economics, and moral philosophy. Electives were added from time to time, so that by 1881-82 it was possible to select courses in Latin, Greek, mathematics, astronomy, physics, history, chemistry, history of philosophy, French and German, political science, and museum work. As late as 1901, however, more than half the total curriculum was still prescribed.

By the turn of the century the half-prescribed and half-elective curriculum was the usual form of compromise between the two principles. Today, the most common structure includes, in addition to free electives, two required elements, a major and a "general" requirement. However, only the components of the curriculum are prescribed; students are rarely obliged to follow a particular course of general studies and their choice of major is ordinarily as wide as the number of departments in the university. This is currently the basis of the Princeton system.

THE CURRENT PROGRAM

The present undergraduate curriculum reflects a concern for both depth and breadth of learning. The student is permitted considerable discretion in selecting appropriate experiences which achieve these goals. He may at his pleasure pursue his own catholic or sectarian interests in totally unrestricted elective courses which may occupy nearly half of his total program. However, current regulations impose three principal limitations on free choice:

1. Every undergraduate must complete at least eight courses as part of a departmental area of concentration which also includes two years of independent work. The major may not exceed twelve courses.
2. Distribution requirements must be satisfied by completing two one-term courses in each of four general areas: natural science; social science; arts and letters; and history, philosophy, and religion.
3. All students must satisfy a requirement in English composition.
4. Proficiency in a foreign language must be demonstrated before entering the senior year.

Few things before the Commission have occupied so much of our time and energy as the effort to decide to what extent this curricular pattern should be maintained or modified. We have concluded, after much deliberation, that the basic structure is sound but that moderate reform in some areas would improve the quality of the academic program.

Electives

The least problematic of all the elements in the curriculum are electives. Their range includes all offerings in the catalogue; their number is fixed by subtracting specified requirements from the total number of courses required for graduation. The problem, in the first instance, is to identify the criteria which any course must satisfy to be included in the undergraduate curriculum. An eligible course includes insights, information, and theory about nature and human nature which have been codified by a recognized branch of knowledge or a synthesis of several established disciplines. The subject should represent a significant product of the accumulated cultural heritage which has intrinsic worth or social importance. The materials should lend themselves to systematic treatment which results in comprehension beyond that which is accessible through the mass media, unguided study, or ordinary experience.

These criteria specifically allow the inclusion in the curriculum of any course in the humanities, natural or social sciences—pure or applied, historical or contemporary, creative or scholarly, comparative or intensive—which meets demanding intellectual standards and exclude those which do not. Students who are exposed to such offerings and are rewarded with a growing sense of mastery walk with a springier step.

The educational right and left wings have often joined in unwitting conspiracy to deny students the advantages of serious intellectual experience. The former question their capacity for scholarship while the latter speak of "alienation" and the paralysis of the will to learn. Students are unjustly victimized by condescension whether its source is contempt or pity, for at bottom these are the same. The university is not a benign custodial institution but a house of intellect and none has the mandate to deny students the competence and joy that comes from arduous intellectual effort. If educators have not yet been sufficiently inventive in reaching all students, they will not make the effort if they are falsely persuaded that such attempts must fail.

One index of Princeton's determination to protect its curriculum against frivolous and insubstantial offerings is the remarkable stability of the number of course offerings during the past decade. As Table 5.1 indicates in the ten-year period from the academic year 1962-63 to 1971-72, the number of courses listed in the catalogue increased from 636 to 723, or a net expansion of 87 courses. Almost all of the increase is attributable to listings by new departments and programs which did not exist at the beginning of this period including Anthropology, Biochemistry, East Asian studies, Near Eastern studies, Afro-American studies, Statistics, and Creative Arts. Among the "standard" departments the largest single increase was in the School of Engineering which exhibited a modest net growth of only thirteen courses.

This stability is in part based upon fiscal prudence, but it also reflects a determination to resist curricular inflation in response to every passing intellectual fad and fancy. Since 1970-71, the Deans, in consultation with departmental chairmen, have set fixed annual quotas on the overall number of courses each department may offer. The adoption of this system had the immediate effect of reducing the total number of courses by six or seven percent and there has been no significant expansion in undergraduate offerings in subsequent years. The Commission endorses the procedures through which the number of courses has been kept within reasonable bounds and recommends that they should remain in force.

Common Studies

The aims of common studies (sometimes defined as "General Education") are as numerous as educational philosophers but they have ordinarily sought to provide a sense of the continuity of civilization, particularly Western civilization, its persistent moral and political problems; to provide a common knowledge, a consensus, a sense of common tasks facing all American citizens; to provide an understanding of the interconnectedness of knowledge; to overcome specialization and intellectual fragmentation; to teach intellectual competencies; to stimulate interest in the environment, physical and social; and to relate education to contemporary life.

The goals of common studies, whatever their similarities and differences, are based on the common belief that it is possible to identify what it means to be an "educated" man or woman, and to teach these materials and subjects. The fundamental conviction has been seriously eroded in recent years and brings to the fore again the prescription versus election issue which exercised our ancestors. The assault on the notion that all students should be exposed to a common core of knowledge is in part an expression of a philosophical or psychological distaste for requirements as such or a confession that we are unable to agree as to what knowledge has most worth. We would presumably be more prepared to restrict choice if we could identify the intellectual repertoire without which no one could claim that he had been educated.

It is precisely this belief in educational imperatives that has become moot. In a society with diverse interests and beliefs and in the presence of a heterogeneous student body it is difficult to know how to fashion a curriculum that nevertheless asserts that every human being is in some respects like every other human being, that each will inhabit the same nation and share its uncertain future and, therefore, that each should carry within him some elements of the same sustaining tradition. The problem is complicated no little by the enormous rate of scholarly accumulation in the arts and sciences. As each branch of knowledge extends its domain over new territories the imbalance between what can be "covered" and what must be abandoned grows ever greater. And yet the survival of some form of a mandated common experience in the overwhelming number of colleges and universities is testimony of a deep-seated reluctance to relinquish the stubborn belief that there is a sense in which all share a kindred intellectual tradition, a common culture, and the same fate.

MODELS OF COMMON STUDIES

It is possible to identify five "pure" approaches to common studies which singly and in combination comprise the prescribed curriculum.

1. Transmission of the most significant products of the accumulated cultural heritage;
2. Inculcation of knowledge which is instrumental in achieving social goals;
3. Instruction that is relevant for dealing with the life tasks of individuals;
4. Emphasis on processes and skills which are fundamental to the acquisition of knowledge; and,
5. Exposure to the disciplines represented in the several divisions of the University.

TRANSMISSION OF SIGNIFICANT CULTURAL ACHIEVEMENTS

The most ambitious approach to common studies tries to acquaint students with the events, works, and ideas which exemplify the most significant achievements of Western and world culture. It is a bold conception for it presupposes the ability to distinguish indispensable knowledge from that which is merely desirable. One such effort early in the twentieth century was associated with a school of thought called New Humanism as exemplified by Irving Babbitt of Harvard, Paul Elmer More of Princeton, and Norman Foerster of the University of Iowa. An aristocratic, idealistic philosophy, New Humanism viewed human nature not as simply the highest link in the evolutionary chain but as an entity forever distinct from the lower forms of life—unique, absolute, unchanging. The highest human attributes were defined as reason and imagination. Since these qualities were seen to be fused most perfectly in the Greek classics and in the rightly educated man who has studied them, the classics and ancient languages were to be defended against the encroachments of scientific, vocational, and practical studies. The classics were to be preserved or reinstated in the curriculum. It was felt that there should, however, be some concessions to modernity in the way the classics were taught. Philological research and the minute criticism of texts, which had been encouraged by German scholastic methods, should be replaced by

> . . . a full application of the historical and comparative methods . . . (the right feeling for the past) is to be gained, in the case of the classics, not so much by treating them as isolated phenomena as by making clear the manifold ways in which they are related to the present. . . . The teaching of the classics thus understood could be made one of the best preparations for practical life . . . there is needed a type of scholar intermediary between the high school pedagogue and the university specialist, who can interpret the classics in a large and liberal spirit to American undergraduates, carrying with him into his task the consciousness that he is forming the minds and characters of the future citizens of a republic. . . .[9]

John Erskine, an advocate of liberal literary education, established in 1917 a General Honors course at Columbia which was based on similar assumptions but with a more catholic view of the meaning of a "classic." Each week his students read and discussed one "great book" in an exercise designed to create fidelity to the "great traditions" of the humanities. This was the relatively modest forerunner of the "great books" courses at Chicago and, in their quintessential form, at St. John's of Annapolis. "The truth," wrote Robert M. Hutchins, "is everywhere the same. Hence, education should be everywhere the same. . . . The heart of any course of study designed for the whole people will be, if education is rightly understood, the same at any time, in any place, under any political, social, or economic conditions." The content of a right education would consist principally of the classics, those books that are "contemporary in every age, because these studies draw out the elements of our common human nature, because they connect man with man, because *they are* basic to any further study and to any understanding of the world."[10]

The "great books" approach has offended some educators who are generally sympathetic to its aims because it introduces students to a series of desirable experiences in which the thinkers may simply talk past one another. Moreover, the timeless quality which Hutchins so admired has the effect of separating ideas from events. However, the emphasis on intellectual unity and history led to the invention of the "survey course." The first such offering "Social and Economic Institutions," an attempt to integrate all of the social studies was introduced by Alexander Meiklejohn at Amherst in 1914. The "Introduction to Contemporary Civilization" which was first offered at Columbia in 1917 was the precursor of its "general education" program which survived nearly intact until the very recent past.

Each of these programs reflects an effort to introduce students to the most distinguished events and ideas of the Western heritage. They reflect John Dewey's conviction "that the pupil shall be touched, shall be stimulated, on all sides, that he shall be given a survey, at least, of the universe in its manifold phases."[11] To the extent that Erskine, Meiklejohn, Hutchins and others were almost exclusively preoccupied with masterworks of the past, they can be chided for their intellectual snobbery; their greater sins are arrogance and ambition. The Chicago variant of the "great books" approach assumed that truth was very nearly exhausted by the Thomist synthesis and that contemporary triflers need not apply for inclusion in the curriculum. This edict exiles many who can illuminate that "present" which Whitehead referred to as "holy ground." The "civilization" courses require professors of almost boundless erudition who are constrained by the limits of time to offer courses that are necessarily superficial. Moreover, since both the "great books" and the "civilization" programs seldom interest faculty specialists who contribute to their discipline they are ordinarily taught in a separate division with all of the deleterious consequences in status conflicts and poor morale that are inherent in any such form of segregation.

There is, nevertheless, something enormously appealing about the lofty conception that professors and students should stroll through the centuries and converse with the giants. A substantial part of the curriculum is already given to the study of great books either in courses specifically devoted to one or more prominent thinkers or in connection with offerings in which the achievements of the past illuminate current experience. There is no reason why these offerings could not be joined by others which are more squarely in the "great books" tradition. Humanistic Studies, for example, is considering a two-term sequence devoted to major literary works beginning with Homer and ending with Dostoevski. The exposure of students to the treasures of the past is to be welcomed but for the reasons stated earlier it does not seem to us that the "great books" approach is the most appropriate basis for common studies.

SOCIAL GOALS

It would be possible to develop a core of common studies based on the analysis of specific social problems—e.g. war, race, poverty, pollution—in which all students should be interested by virtue of their common citizenship. At first glance, any such approach would seem to minimize the role of the humanities but this need not necessarily be the case. Students would be introduced to war novels, the literature and art of protest, to the great works of imagination which have a special kind of immediacy and a deeper meaning than can be found in scholarly monographs.

The "social goals" approach is perhaps best exemplified at the Green Bay campus of the University of Wisconsin where all courses are devoted to the theme of "survival." There have been no extensive published reports of this experiment, but it should be watched with great care and interest. It is one of the few genuinely substantive contributions as distinguished from pedagogical innovations that has emerged from the recent introspection about American education.

In one sense, the college as a corporative entity has already adopted a curriculum which is oriented toward social goals. Every discipline can lay claim to concern for the human condition. Seemingly remote theoretical studies in the social and natural sciences, and literary and artistic works which celebrate private visions, may nevertheless have unforeseen significance for the behavior of men in society. We suspect that, in the absence of some principle of disciplinary exclusion, common studies organized around social goals would simply institutionalize a preference for "applied" rather than "pure" inquiry. If the "great books" approach is too preoccupied with eternal verities and too fond of metaphysics, a program of common studies which was wholly devoted to pathologies and informed by immediate pragmatic concerns would be equally one-sided and disrespectful of the full range of human experience.

LIFE TASKS

The view that general studies "should prepare students for life" is best summarized in John Dewey's well-known definition of education as the "reconstruction or reorganization of experience which adds to the meaning of experience and which increases ability to direct a course of subsequent experience."[12] The curriculum is not, as the traditionalists would have it, something external to the student—"a body of ordered material neatly packaged into subjects and ready for doling out as the occasion requires—but rather a tool which serves the student's growth and development."[13]

One can imagine a prescribed program of common study with courses devoted to work, friendship, marriage, leisure, and community participation. These are, after all, the activities that engage all adults. At the same time, it is doubtful whether clinical instruction in these areas is profitable and, if so, whether the university is the appropriate agency to undertake this task. If courses devoted to "life tasks" contained genuine intellectual content, and were offered at levels of requisite generality, they would lose much of their power as a source of "tips" for students seeking practical answers to immediate problems. If, on the other hand, college courses were to become undisciplined and aimless pedestrian exercises, the university would be an accomplice in squandering its most distinctive resources. The "life task" approach meets the criterion of universality, but it is unfortunately outside the range of the proper curricular functions or competencies of the college.

BASIC SKILLS AND COMPETENCIES

The argument for organizing common studies around a core of skills and competencies rests on the assumption that they make knowledge accessible and are thus the appropriate prelude to upper division courses and indeed of a lifetime of study. The student would acquire a command of English and foreign languages, mathematics, logic, and statistics and thus armed he would be equipped to master all those disciplines which require these tools. This is an attractive notion but it suffers from several major deficiencies including:

1. The study of gateway skills taught as technique and method is incapable of performing the "humanizing" and "civilizing" function which is sought by proponents of general education.
2. Secondary schools, not colleges, should be primarily responsible for developing proficiency in the languages and mathematics. The transfer of these tasks to the university has the effect of prolonging the high school years and delaying the start of higher education.
3. The study of language, logic, and mathematics apparently requires special aptitudes which are not widely distributed in the college population.
4. Skills and competencies are not abstract entities but must be selec-

tively employed in relation to particular problems and areas. Aside from the fact that the statistics appropriate for economics may have limited utility to sociologists one of the hallmarks of a refined mind is the capacity to distinguish when to rely on "soft" intuitive approaches to data and when to insist on "hard" rigorous analysis. Such discriminations cannot be learned when method is divorced from content and "tools" are separated from the uses to which they might be put.

5. The early years of college are crucial in developing a positive approach to learning. It is evident that the study of language, mathematics, and logic fail to excite the imagination of many students.

There are, therefore, no universities which rely exclusively on the "skills and competencies" approach to common studies. The foreign language requirement, for example, has been under assault for more than a decade and has been eliminated altogether by a number of major universities and liberal arts colleges. Only English composition among the basic competencies remains a staple in most collegiate curricula. It is difficult to imagine that a university could do less than require that students speak and write English as if it were their native tongue even if it did not furnish them with all of the other keys to the kingdom of learning.

THE DIVISIONS OF LEARNING

Perhaps the most frequent form of common studies is the pattern which requires students to "distribute" a specified number of courses offered by the several divisions of the university—natural sciences, social sciences, and the humanities. These divisions may be further subdivided and the distribution areas may be expanded. Distribution requirements offer a "shared experience" only in the sense t[illegible]very course in a division or in a distribution area is presumed to be an adequate sample of the total universe of such courses. The assumption seems progressively less defensible as we proceed from the natural sciences to the social sciences and thence to the humanities. The physical, life, and earth sciences despite their differences in subject matter and in their state of development seem all of a piece in ways which do not apply to other branches of knowledge. Thus, for example, students may complete the social science requirement by taking any one of a full roster of offerings in anthropology, economics, history, politics, psychology, or sociology. At the most general level the unity of the courses rests on the fact that they deal with human beings by employing methods that bear a loose resemblance to those used by natural scientists. The courses themselves are, however, otherwise quite unrepresentative of each other and it is not intuitively obvious in what sense "money and banking" and "humanistic psychology" are interchangeable.

These strictures are even more applicable to the humanities. The following fields are arguably quite different from each other and yield rather different lode: English, art and archeology, architecture, philosophy, religion, classics, area studies, and creative arts. It is questionable whether a course in the history of photography is an adequate substitute for a course in Shakespeare simply because we are pleased to call them both humanities. The dilemma, then, is that we may either require work in most or all fields, a policy that would result in a highly prescribed curriculum, or recombine categories in a way that would justify a claim as to their internal coherence.

The heterogeneity of offerings within any conceivable system of distribution areas constitutes the most serious objection to the adoption of this mode of general education. However, the distribution principle has several important features which commend it, especially in a university setting:

1. The university is organized into departments and programs which reflect the prevailing distribution of academic labor. The faculty's specific claim to a hearing rests on its expertise in these areas. With rare exceptions disciplinary specialists have neither the erudition nor the inclination to play the role of the "generalist."

2. Distribution requirements are the least coercive mode of general education. Although students gain breadth through exposure to all the major branches of learning they are free to select whatever courses they wish to pursue. Freedom of choice is an independently desirable value and is presumably connected with the motivation to learn. Moreover, this ecumenical feature of distribution requirements has the administrative advantage of allocating the responsibility for general education throughout the university.

3. General education should be related to the area of concentration and one of the principal functions of the distribution requirements is to afford undergraduates a period of exploration before they select a major. As we have indicated elsewhere (see p. 132) almost half of all students change their original selection of an area of concentration. If it is reasonable to assume that the last choice is also the best, then distribution requirements are not only valuable in themselves but also help prevent premature commitment to a specialized area.

THE PRINCETON SYSTEM: BASIC SKILLS AND COMPETENCIES PLUS DISTRIBUTION REQUIREMENTS

The *Undergraduate Announcement* specifies three types of requirements: English composition, foreign languages, and distribution areas. The pertinent passages are as follows:

1. English Composition: "All entering freshmen prepare written samples in Orientation Week, before the beginning of the fall term. On the basis of the samples most students are required to take one of the literature courses which regularly involves the writing of essays (121, 122, 131, 132, 141, 142). Those who demonstrate the need for intensive work in English composition enroll in Literature 151, and those whose writing sample is judged outstanding satisfy this requirement at entrance."[14]

2. Foreign Language: "Foreign language study is required through courses numbered 107 (or 108) in French, German, Greek, Hebrew, Italian, Latin, Portuguese, Russian, Spanish, Arabic, Persian, Turkish, Japanese, or Chinese if taken at Princeton or through demonstration of an equivalent level of competence . . . At the end of any term beyond the first, a student may take an achievement test and may fulfill the language requirement . . . students are expected to develop proficiency in a foreign language before entering the senior year."[15]

3. Distribution Areas: "Undergraduates in the Bachelor of Arts program complete two one-term courses in each of four general areas"; Natural Science; Social Science; Arts and Letters; and History, Philosophy, and Religion. "In the natural sciences, a student elects courses in the same science with weekly laboratory. In the other areas, the two distribution courses need not be related. Thus they may be located in different departments and taken concurrently."[16]

It should be noted that students must demonstrate "proficiency" in English and foreign languages but are simply "exposed" to courses in distribution areas. This means, in effect, that the failure to meet specified standards of competence in foreign languages, for example, will prevent the student from graduating. A failing grade in "Europe Since 1750," however, would not result in the same consequences. A student would not be required to repeat the course or indeed take another offering in the History Department. The Commission considered both the proficiency and the exposure requirement at some length and concluded that each should be retained but in modified form.

THE REQUIREMENT IN ENGLISH COMPOSITION

Everyone who served on the Commission throughout its existence, administrators, faculty, and students, those who were philosophically inclined toward imposing requirements and those who were advocates of greater opportunity for students to exercise choice, all favored a proficiency requirement in English composition. Since the ability to write lucid and coherent prose is so fundamental to all else, an undergraduate who fails to demonstrate a mastery over his own language does not meet the minimum standards of an educated man or woman. Indeed, it can be argued that a student who cannot achieve a certain nicety of expression or perhaps even a measure of verbal grace and elegance will be incapable of making those subtle distinctions which are the hallmark of a discriminating mind. Almost all offerings, therefore, should include extensive written work as part of the course requirements and instructors should pay heed to form as well as content.

Frequent and intensive practice in writing should begin very early in an undergraduate's career. Every freshman should have the experience of submitting many short papers, having them returned with comments, and then resubmitting a revised version for final evaluation. The present introductory literature courses make some provision for writing essays but both their large enrollments and their primary emphasis on content militate against the type of intensive writing experience that we have in mind. While the English Department must assume responsibility for organizing a course such as the present "English Lit 151," it would be unfortunate if this localization of responsibility created the impression that good writing is a specialized "subject" rather than a general requisite for learning. Indeed, we wish to encourage other departments to develop courses equivalent to the present Literature 121, 131, 141 and to have all such courses concentrate more intensively on composition.

Freshman composition courses of the type contemplated will be difficult to administer and very costly. In the judgment of the Commission the expense may be reduced by making use of Assistants in Instruction but there are only a limited number of graduate students who are equipped to conduct classes in composition. Nevertheless, the Commission places so high a priority on the acquisition of linguistic competence that it is prepared to recommend, if necessary, that junior independent work in the humanities and social science departments might be reduced by one term to make funds available for freshman composition courses. In suggesting this trade-off we are also mindful of the fact that writing courses offered by a variety of departments are the functional equivalents of "freshman seminars" elsewhere and provide the educational advantage of additional small-group instruction at a time when it is of special benefit to many students.

In view of all the considerations cited, the Commission recommends the following: *During orientation week a suitable examination in written English would be administered to every freshman. Students who failed to meet acceptable levels would be enrolled in English 151, an introductory course. All others, except those who demonstrated unusual competence, would register in a one-term writing course offered by appropriate departments in the humanities and the social sciences. Each student would write frequent short papers on topics that would vary with the discipline but the chief emphasis would be on developing style, clarity, and power of* *expression rather than on mastery of a large body of materials. The responsibility for administering and coordinating freshman composition courses would reside in the Department of English.*

THE FOREIGN LANGUAGE REQUIREMENT

The late Edmund Wilson, among the most distinguished of all Princeton alumni, described the joys of learning a new language in his "Note-Books of Night" as follows:

> Ah, the pleasures of approaching a new language! The words are all drill in grammar. They are odd or attractive objects . . . They involve us in oral judgments and they are devoid of emotional connotation: We can play with them like pets or toys. Then when we first begin to see into their meanings, with what freshness the world reappears to us! Trees and tables, dogs, women and children, coming and going, God, government and butter, have assumed a new strangeness and interest, as if they were being named for the first time.[17]

Few share Wilson's lyric appreciation of the opportunity to learn a new tongue. In the past, and now with increasing frequency, many undergraduates and some faculty oppose the imposition of a language requirement. Thus, for example, in 1968 the Undergraduate Assembly passed the following resolution: "Whereas we recognize the merits of learning a second language, the UGA deems it unnecessary and unwise to require competency or exposure to a foreign language at the undergraduate level. Such requirements frustrate the individuality and creativeness of students and take from learning that pleasure which is an intrinsic quality of self-directed and self-motivated education. We feel that the different needs and goals of individuals require different academic programs and that forced requirements are never in the best interests of either the individual or the institution." In spring, 1972, a petition containing 950 signatures was presented to the Dean of the College which read simply, "We, the undersigned, support the abolition of the language requirement at Princeton University." In point of fact, a number of selective liberal arts colleges such as Smith, Swarthmore, and Vassar have eliminated the requirement. Yale strongly recommends, but does not insist, that undergraduates pursue work in a foreign language and Harvard requires a CEEB score of only 560 as a standard of proficiency. (Table 5.2)

There is no doubt that the proficiency requirement at Princeton of 107 or 108 level of achievement, or a CEEB score of 700, or an advanced placement score of four is considerably more demanding than at most other institutions. A proposal by the Course of Study Committee in 1969 to make language a distribution area requiring two courses or fewer was discussed and defeated by the faculty as a result of the combined votes of those who oppose any modification of the language requirement and those who wanted it abolished completely.

The language requirement provokes strong feelings both pro and con, and recent efforts to find some middle ground have proved unsuccessful. The arguments conventionally advanced for language study may be summarized as follows:

1. The mastery of a foreign language is desirable *prima facie* for the same reason that we study all other significant human achievements.
2. Language is closely related to the structure of thought and the direct knowledge of another tongue expands the student's conceptual apparatus and provides him with new means of organizing his experience.
3. American culture and education tend to be insular and command of a foreign language overcomes this provincialism by making other literatures and civilizations accessible.
4. In a world characterized by the interdependence of nations and increasing contact between peoples through travel and otherwise a foreign language is often directly useful as a tool of communication.
5. Foreign languages are required in some undergraduate programs and in almost all graduate studies.
6. Familiarity with another language enhances understanding and facility in English.

These arguments are not equally persuasive. Thus, for example, only about fifteen percent of Princeton students enter graduate schools of arts and sciences and some of these pursue studies in which no knowledge of a foreign language is required. This number seems too small to sustain a general case for foreign language instruction. The contention that the study of French, for example, improves a student's command of English is even less convincing. The "transfer of training" controversy has raged since the nineteenth century and is still unresolved but we hazard the guess that time spent learning French might better be lavished on English if what is desired is competence in the latter.

The dispute over the language requirement does not hinge, however, on the validity of this or that argument advanced in its favor. Most opponents of compulsory language instruction do not deny that foreign language instruction should have an honored place in the curriculum. Their opposition is directed instead against *requiring* instruction in foreign language for all students. This position may be summarized as follows:

1. Foreign language instruction, for all its merits, has no special claim as a general requirement since many of its putative virtues can be achieved in other ways. The study of Russian history and literature in

translation, for example, is at least as revealing an introduction into the culture of the Soviet Union as the struggle with declensions.

2. Uniform requirements of any kind unduly restrict students from pursuing their own educational goals.

3. A number of students are unable to meet the language requirement because of (a) a "language block" caused by hearing loss or impairment, speech impediments, auditory scrambling, poor auditory memory, or strephosymbolia; (b) a "motivation block" which results in severe distress and little learning; or (c) a generalized incapacity to learn new languages which has no identifiable physical or psychological source.

In view of the conflicting opinions about the language requirement the College could elect to: (1) eliminate the requirement altogether; (2) modify the current regulations by changing the emphasis to "exposure" rather than proficiency; or (3) retain it essentially in its present form but with provisions for dealing with the problems which arise. After considerable discussion and careful balancing of the various arguments, the Commission ultimately concluded that the case for learning a second language was sufficiently powerful to justify some sort of a language requirement. Since many students find language study arduous and the benefits to be derived are necessarily deferred until such time as considerable competence has been achieved, a substantial number, in the absence of a requirement, would bypass a potentially valuable experience. Moreover, it is unlikely that many undergraduates, once having received their degrees, would have the inclination or the opportunity to gain exposure to a language through self-directed and voluntary study.

We do not believe that any *general* argument against requirements can be sustained. For example, the College requires that a specified number of courses shall be completed as a condition for the degree, that students shall meet certain standards in these courses, that each undergraduate will select an area of concentration, that every student will undertake an ambitious senior project, etc. It is highly improbable that all students find such obligations wholly congenial. Indeed, if rules were universally popular there would be no need for them. Regulations exist precisely because individual preferences may not coincide with institutional definitions about which practices and experiences are necessary and valuable.

On the other hand, there is always a presumption against compelling anyone to do anything against his will unless the benefits to the larger group or to the individual himself outweigh a temporary restriction of freedom. Speaking generally, such circumstances exist with respect to curriculum when an educational experience is (1) valuable, (2) unique,

(3) difficult, and requires (4) rigorous formal instruction, (5) the willingness to defer gratification, and for any of these reasons (6) might be avoided by students.

All of these criteria apply to the study of languages and there is, moreover, the additional consideration that the elimination of the requirement in colleges and universities throughout the nation would have damaging consequences for foreign language instruction in the secondary schools. This would not occur if achieved full competence in foreign languages were a pre-condition for actual admission to the university, but imposing such a precondition is plainly unrealistic. It would be manifestly unfair, for example, to exclude otherwise qualified candidates who are graduates of secondary schools with mediocre foreign language programs. At the same time, if colleges do not insist on language competence either at admissions or after matriculation it would not be very surprising if many secondary schools, some of which already regard language instruction as a "frill," would reduce even further the scope and quality of their language offerings. Any such result would be lamentable in a nation already so resolutely monolingual as ours.

The Commission, however, not only endorses the present practice of granting waivers to undergraduates suffering from "specific language disabilities," but we also favor broadening this policy somewhat to include other categories of students. According to present faculty legislation the only grounds for a language waiver is an identifiable and specific condition such as poor auditory discrimination or memory which, in effect, makes it impossible or almost impossible for a student to master a second language. About five percent of the class of 1972 were exempted on this basis. The procedure by which the requirement is waived is rather cumbersome and involves the combined efforts of classroom instructors, the Counselling Service, and the Committee on Examinations and Standing. A major difficulty in granting or denying waivers is that specific language learning disabilities range from acute and evident problems to something as ephemeral as a "disabling disinclination." Nor have there been any tests devised thus far which can positively identify those already affected or predict those who may suffer a disability in the future.

It is, of course, even more difficult to distinguish a genuine inability to learn a new language from what in student parlance might be described as routine "goofing-off." Nevertheless, it does not seem altogether just that the only condition under which a student can obtain a exemption from the language requirement is to demonstrate a clinically diagnosed "language block." Surely, there are other legitimate reasons for granting a language waiver including alternative educational goals and such limited linguistic aptitude that minimum levels of competence can be achieved only at the expense of other courses, or sometimes not at all.

The issue of "waivers" has been a serious problem only for the last three graduating classes. Undergraduates who were admitted as candidates for the A.B. degree in the class of 1969 and earlier could satisfy a proficiency requirement in either language or mathematics. Students who were not granted advanced placement were required to achieve a grade of at least 5— or P in a 107 course or higher in a language, or in two courses in mathematics, or in one course in mathematics and one in statistics which was then offered in the mathematics department. In the spring of 1965 the mathematics option was abolished partly because all of the elementary mathematics courses were confined to the calculus and also because the mathematics department did not offer "a general course concerning the basic theory and nature of mathematics."[18] The elimination of the mathematics option closed off any alternative for those who would otherwise not have chosen to study a foreign language.

The constrictive features of the current foreign language regulation could be lessened by requiring entering students who failed to qualify at the 107 level to register in language courses for a maximum of two terms and by adopting the criterion of "exposure" rather than "proficiency" as the basis for the requirement. Under these circumstances, no student would be denied the degree because of his linguistic shortcomings and the period of compulsory study would be sharply reduced. For these and other reasons the Commission gave very serious consideration to this proposal. Foreign languages, in effect, would have become a distribution area like all others and there would be no presumption that a student would necessarily pursue the type of advanced work which would lead to genuine facility in the language. This plan would have had the additional advantage of encouraging students who wish to do so to begin a new language without committing themselves to four consecutive terms of study in order to achieve the present level of required proficiency.

The chief objections to this plan are that: (1) nearly all Princeton students have already been exposed to a foreign language before they enter the University; and (2) the difference between knowing and not knowing a language should be conceived as a qualitative rather than a quantitative distinction. An undergraduate who enrolls in a course in history and fails to grasp much of what there is to know nevertheless may derive *something* of value from this experience. A student who does not become reasonably proficient in the use and understanding of a language, however, will realize few, if any, of the rewards that are usually attributed to language study. The "exposure" concept would thus entail all the objections that might be advanced against any requirement without the saving grace of significant educational gain.

According to data based on all transcripts of the most recent graduating class, more than 70 percent of all students now meet the University's proficiency requirement in two terms of study or less, and would therefore be unaffected by any change in a language requirement which substituted the principle of a two-term exposure for proficiency. (Table 5.3) This 70 percent were composed of a combined total of 16 percent enrolled in the School of Engineering or as University Scholars and were thus exempt from the requirement; 14 percent who qualified through advanced placement; 23 percent who demonstrated proficiency after one term of study, and 18 percent who reached the 107 level after two semesters of foreign language instruction. Since an additional five percent of the class were granted language waivers, a proficiency requirement extends the length of language instruction beyond two terms for approximately one-fourth of all students. Of this group, an unknown, but probably not trivial percentage would elect to continue language study even if they were not obliged to do so. It would thus appear that a comparatively small proportion of all students—perhaps 10-20 percent—experience the language requirement as "compulsory" beyond two terms of study.

We conclude, therefore, that the proficiency requirement should be retained in conjunction with a somewhat more liberal policy governing exemptions. Even now, a student can appeal to the Office of the Dean of the College to seek relief from the requirement under certain conditions, and we would expect that this policy of waivers could be adjusted somewhat to give consideration to a slightly broader range of cases where sound educational reasons would justify setting aside the requirement. The Dean, or his representative, would review a student's total academic record including his previous language instruction; in appropriate cases, he might grant an outright waiver, or require a suitable substitute such as a study of a culture area, work in linguistics, or courses in foreign literature offered in English. The burdens on the Office of the Dean would be slightly increased but we are assured by him that they would not be unmanageable, especially if, in the course of time, a developing body of "common law" established some codified rules as to when language waivers would be granted.

Accordingly, in the light of the discussion contained in the previous paragraphs, the Commission recommends that *all A.B. candidates shall ordinarily be required to demonstrate proficiency in a foreign language either by completing a course at the 107 or 108 level or by demonstrating an equivalent level of competence. The Dean of the College shall have discretionary power to grant exemptions for a "specific language disabil-*

ity" and for other causes including limited linguistic aptitude, or compelling educational reasons. The Dean should be authorized to grant outright waivers or to specify alternative experiences (e.g. courses in a culture area, study of linguistics, literature in translation) which yield some of the benefits derived from instruction in a foreign language.

DISTRIBUTION AREAS

Any effort to define the number of distribution areas and to specify the courses which are eligible for inclusion in each must, perforce, begin with some agreement about the goals which are to be achieved by exposure to the curriculum. The Commission achieved substantial consensus that undergraduates should have (1) substantial mastery over their own language and proficiency in a foreign language; (2) learned something about themselves, other people, and the natural environment; (3) formed a sense of how events change through time and how people differ across societies; (4) developed aesthetic and moral standards; and (5) had direct experience with some of the most significant products of our cultural heritage. If this much is granted, several questions arise. Are there a set of experiences which are dependably associated with these desired goals? Should all students be exposed to all such experiences or should they be permitted some latitude of choice?

The first of these questions is less problematic than the others. The current distribution areas, natural science; social science; arts and letters; and history, philosophy, and religion seem both as comprehensive and as internally coherent as any others that might be specified, although at one point the Commission was inclined to grant history independent status as a fifth area. There is probably no one-to-one relationship between exposure to particular courses and a specified educational goal but it is clear, for example that a course in ethics or religion, can make a special contribution to one's ability to discriminate and articulate issues related to "moral standards" and conduct.

A more perplexing issue is whether the College should require students to undergo a preliminary period of exploration in (1) all, (2) some, or (3) none of the distribution areas. These alternatives exhaust the possibilities and each was strongly advocated by some members of the Commission. The position that students should be required to take courses in all distribution areas was argued on the traditional grounds that anything less than exposure to all the major divisions of knowledge would deprive undergraduates of the full benefits of a liberal education. It seemed to those who subscribed to this view that the elimination or relaxation of requirements would represent an unwarranted retreat from "standards" and a departure from the commitment to adequate breadth. The polar opposite of this position, the contention that there should be no distribution requirements, is based on the conviction that no course in the curriculum except English composition is demonstrably more "essential" than any other, that students at the college level should be free to make their own decisions, and that not much can be learned in the face of strong psychological resistance to a requirement.

After considerable debate the Commission finally arrived at a position based on the following series of assumptions:

1. Most students derive great benefit from exposure to courses in each of the academic divisions of the University and they should be so informed by their advisers and by means of published guidelines which emphasize the merits of intellectual diversity.

2. There is no need to insist on requirements which the majority of students will meet voluntarily. Students majoring in the humanities are the most inbred group (73 percent of all their classroom hours are spent within the division) and they are followed in descending rank order of insularity by social science majors (55 percent) and by majors in natural science, who take about half their work within the home division. (Table 5.4)

It is noteworthy that students who major in any of these divisions ordinarily take more courses in each of the other divisions than are specified by the distribution requirements. There are two qualifications to this generalization, (a) enrollment figures in the natural sciences are inflated by pre-medical students who major in other divisions, and (b) the overselection of social science courses by natural science majors is marginal. (Table 5.4)

3. There is no special virtue in insisting on any particular distribution of course work within the social sciences and humanities since each of these divisions is very heterogeneous and it is often difficult to establish that any particular course adequately represents a wider "divisional" universe of knowledge. Thus, for example, courses in intellectual history in the various social sciences border on philosophy, while other offerings in the same department emphasize the analysis of empirical data. Similarly, some forms of literary criticism involve sophisticated historiographic techniques while other approaches emphasize the treatment of literary works from a more purely aesthetic point of view. These variations within and between disciplines in the social science and humanities suggest that it is not always easy to perceive what is distinctive in each division. Clearly, students should have some exposure to studies dealing with man; but it is often arbitrary to designate in which department the student should glean this experience.

4. The several natural sciences, by contrast, form a much more homogeneous group and they share not only a common interest in the

non-human environment but also a distinctive intellectual style. The basic habits of thought and modes of analysis which characterize the natural sciences are also partly shared by the social sciences, but since the latter are as a group more "mixed" in their approaches it is probably more valuable to encounter the scientific approach in areas where it is pursued unequivocally and clearly successfully.

Given the enormous impact of science on the contemporary world, the College would be derelict if it did not require students to become familiar with those models of thought and procedure which are responsible for its peculiar power. The student who is exposed to descriptive science learns to understand that it consists among other things of the interplay of hypotheses and evidence—a series of trials which maximize the opportunities for revealing the errors in a plausible conjecture. At the point of its maximum comprehensiveness science can fashion elegant and powerful theories which codify known empirical generalizations, reveal gaps in existing knowledge, and generate still other theories through logical derivation. The sciences are at various stages of development but each has things to teach that are not available elsewhere in the curriculum.

Learning science is difficult and except in rare instances requires instruction in a formal setting. There is good reason to believe that in the absence of the current requirement many students would avoid enrolling in science courses. According to a study conducted by the Commission 50 percent of all students in the class of 1974 who were registered in science courses that are ordinarily used to satisfy the science distribution requirement enrolled in these offerings in connection with career related interests. (Table 5.5) This group includes majors in the natural sciences, BSE candidates, pre-medical students concentrating in the humanities and the social sciences, and miscellaneous others. Of the remaining students, about three-fourths enrolled in courses in experimental psychology, geology, and oceanography. It seems probable that so large an enrollment in these laboratory courses was not altogether generated by spontaneous preferences. More direct evidence on the impact of requirements is available from an informal survey in 1972 of 126 students in physics who were asked to indicate the reasons that moved them to enroll in Physics 101-102. Eighty-five percent reported that they were satisfying a pre-medical requirement or responding to some other constraint, 10 percent indicated that they chose physics because they "had to take some science course," and only five percent said that they were "somewhat interested in physics."[19]

It seems reasonably clear that many students enroll in science courses out of compulsion rather than interest. It seems equally evident that since no one who is ignorant of science can now claim that he is educated, the solution to the apparently low level of student interest in science courses is not to abolish the requirement but to make it more responsive to the educational goals of undergraduates who major in the social sciences and humanities.

5. It is now everywhere conceded, and by natural scientists as much as others, that majors in the sciences should take a significant amount of their work in the humanities and the social sciences. At Princeton, the science departments need not be persuaded as to the desirability of encouraging their students to live "in both cultures" since students concentrating in the sciences do nearly half their course work in other divisions. We find it difficult to imagine that this cross-divisional migration will be sharply curtailed at some future time. Nevertheless, since we believe no scientist should be granted the Bachelor of Arts degree without exposure to some courses dealing with human behavior, it might be well to translate this principle into a formal requirement.

In the light of the discussion in the previous sections the Commission recommends a new distribution requirement: *All candidates for the Bachelor of Arts degree are required to distribute two one-term courses in the natural sciences and six one-term courses throughout the rest of the curriculum.* The new distribution requirement has the effect of reducing the distribution areas from four (natural science; social science; arts and letters; history, philosophy, and religion) to two (natural science and a single category consisting of the other three areas). Humanities and social science majors will automatically satisfy requirements in one of the distribution areas through their area of concentration so that, in effect, except for the obligation to enroll in two terms of a natural science they are otherwise unencumbered. By the same token, students who major in the natural sciences satisfy one requirement but six of their electives are preempted for work in the other divisions.

THE NATURE OF THE NATURAL SCIENCE REQUIREMENT

The Commission examined the current natural science requirement with some care, particularly with respect to the (1) disciplines included and (2) the provision that both terms must be taken in the same science and (3) the regulation that each course must include a weekly laboratory. We have arrived at a number of conclusions:

1. *It does not seem to us that any distinctions can be drawn among the sciences with regard to their eligibility as distribution requirements.* Sciences which explore the nature of life (biology, biochemistry, and psychology), courses which are directly concerned with the application of science to human needs (engineering and technology), and offerings

that emphasize quantitative description of the universe on both a macroscale and microscale (astrophysics, geology, and physics) are all capable of conveying the power of science.

2. *The stipulation that a student must complete both his courses in the same science seems to us to be unduly restrictive. It should be possible for departments in all the natural sciences to develop one-term courses which are both self-contained and which allow for sequential development.* Students who are so inclined could thus elect to distribute courses in more than one natural science department. No doubt the transitions will be harder in some directions than in others but a number of interesting trajectories can be imagined.

3. *Students who present CEEB or Advanced Placement scores at a level that satisfies the standards of the natural science departments should be exempted from the distribution requirements.*

In the class of 1972 students who sat for CEEB examinations in biology, chemistry, and physics received mean scores of 662, 698, and 702 respectively and an overall mean of 691. These scores are based on some 600 separate examinations with an unknown number of students taking more than one. (Table 5.6) Available data give no indication as to how many who score high might seek exemption from the requirement but since most of these students will probably major in the natural sciences the number cannot be high.

4. The insistence on a laboratory science for distribution purposes rightly emphasizes a central characteristic of scientific work. However, the ordering of various sciences along this axis can be misleading depending as it does on the technical circumstances of available apparatus in the University rather than on the substantive nature of the materials under study. A surer basis for the science component of a liberal education is provided by the theoretical structures that are erected on the data and by the interplay of imagination, skepticism, and disciplined analysis that fuel the enterprise. We have the impression that systematic laboratory work comes to play a more dominant role in time and energy than is really appropriate for the non-scientist. It is of some significance that the laboratory component of science courses tends to earn the lowest ratings in evaluations by students.

It would be well for the science departments to consider whether the weekly laboratory might not be modified or else replaced by some mix of lecture demonstrations, field trips, and preceptorials all of which do in fact have a role in education in the natural sciences for students whose primary orientation is in the social sciences and the humanities.

5. One of the pedagogical problems which is most characteristic for science arises from the early commitment to it on the part of its devotees. It is especially true in the introductory physics courses, for example, that

future science majors and engineers establish a professional atmosphere which is excellent, but not always optimal, for the non-scientist. In a mixed environment the non-scientists are often short-changed precisely at the loftier and more exciting levels of the science. This comes about because for the future science majors these topics can be treated at the later stages of a systematic program of education. The remedy is not a watered down science for non-scientists. But there is a case to be made (unique perhaps to the natural sciences) for establishing special "distribution courses" of the kind that already exist in some science departments, which while rigorously taught, are not conceived as part of the concentration sequence.

In view of the prior discussion we recommend *that the natural science requirement may be satisfied by distributing any two designated courses in Astrophysics, Biochemistry, Biology, Chemistry, Engineering, Geology, Physics, or Psychology.*

The Committee on the Course of Study, in consultation with an interdepartmental committee on the natural sciences appointed by the Dean of the College should: (a) designate which departmental offerings shall be listed as distribution courses; (b) develop guidelines indicating recommended combinations of courses within and among departments; (c) consider how the laboratory component might be appropriately modified; and (d) devise standards and procedures for granting exemptions from the requirement.

The Area of Concentration

The requirement that every undergraduate select an area of concentration is consistent with the principle that every student should master some specialized aspect of knowledge. The major ordinarily has the following characteristics:

1. Students may enroll in a department organized according to a skill, discipline, field, region, or time period;
2. The actual number of courses required may be sometimes increased by prerequisites, their combined total reflecting the requirements of professional and graduate schools;
3. Almost all majors are at least partially interdepartmental in the sense that they require or permit students to take cognates (and sometimes prerequisites) that are offered by other instructional units.

The range of choice offered to Princeton students is as wide as the number of departments, and by all accounts students are well-satisfied with their experiences. Nearly four-fifths of graduating seniors in 1972 rate the overall quality of departmental programs as "excellent" or "good." (Table 5.7) A somewhat smaller but still considerable proportion, over two-thirds, assigned similar ratings to the "degree of flexibility offered majors in planning programs of study in the department." There is no evidence of a wholesale revolt against specialization comparable to that which is said to exist elsewhere.

The opportunity to choose more widely has been enhanced in the recent past by the creation of an impressive list of new programs and departments. In the past half decade the interdepartmental program in Anthropology has been transformed into a full department as has Biochemistry; a new interdepartmental program in Afro-American Studies has been begun; a new interdepartmental program in Comparative Literature has developed rapidly and interestingly; a very strong program in the History and Philosophy of Science has established itself as a very distinguished unit; the School of Architecture has developed an Urban Planning section, and has reoriented architectural studies at Princeton so that they relate far more closely to the social sciences as well as to Engineering; major efforts in Urban Studies (including the creation of an Urban Studies Council) and Environmental Studies (with a new Center recently founded) are under way; a major revision of the curriculum of the School of Engineering is in process, with the introduction of new interdisciplinary programs related to but fusing in a new way the traditional classical engineering departments (the new programs are in Transportation, Energy, Bioengineering and Environmental Studies); a new field of study in the Near Eastern Studies department has been created, focusing on Judaic Literature and Culture (new language and literature courses); a new Medieval Studies Committee has been formed, that oversees and advises students who wish to make Medieval Studies a major field of concentration; and, finally, there have been major initiatives in the area of Creative Arts, including the development of a new theater program, the revitalization of the professional repertory company at McCarter Theater, the creation of credit courses in Modern Dance as well as in the History of Photography, Painting and Sculpture, and the consequent creation of new administrative units to foster these areas of study (a Program in Visual Arts and a Program in Creative Writing). The Creative Arts have recently been housed in a newly-purchased building and student interest in creative arts work is clearly strong and serious.

No mere catalogue of programs and departments can give a clear idea of the vigor or quality of these efforts, and clearly some of these ventures are more healthy than others, although all of them are soundly grounded and all are sufficiently excellent as to be regarded as substantial additions to the university's curriculum. The major thrust of these changes clearly indicates a continued and strong developing interest in various kinds of interdisciplinary studies at Princeton, and similar vitality in the creative arts. In addition to the programs already created, there is considerable interest in further interdisciplinary work in the humanities and social sciences, as, for example, the new venture in Medieval Studies, and the newly strengthened work in the American Civilization Program, point in this same general direction. Finally, it is very clear that the recent efforts to create a relationship between traditional liberal arts studies and work in the creative arts is important and will continue.

INTERDISCIPLINARY STUDIES

The diverse forms of coherence which unify departments and programs and their interdependencies are especially striking in view of the common tendency to refer to them as if they were self-contained "disciplines." Some departments, such as Statistics, among other things teach formal *skills* which are useful to many branches of study. Units such as Biology, Chemistry, Geology, Physics, Anthropology, Economics, Politics, Psychology and Sociology are based on *disciplines*—established methods, concepts, observations and generalizations which codify existing knowledge and structure perceptions of a restricted sector of the natural or social world. Religion or Near Eastern Studies or Afro-American Studies are really *fields* of study; they are "areas" to be investigated (not tools of investigation).

The body of materials encompassed by skills, disciplines, and fields may be traced through *time* as in the History Department or the Program in the History and Philosophy of Science, or in *cross-societal perspective* as in the various regional programs such as African Studies, Russian Studies, etc.

Since departments are products of historical legacy, idiosyncratic accretion, and changing intellectual emphasis, the problems they investigate seldom coincide precisely with their primary definition of purpose. In the course of their evolution they frequently invade other jurisdictions, borrow intellectual capital, and rarely maintain a full semblance of intellectual self-sufficiency. As the following general illustrations indicate, it is possible to conceive of actual or potential areas of concentration which result from limited mergers of the diverse emphases of existing instructional units.

1. Skills augment each other
    Mathematics and Statistics
2. Disciplines merge to form new disciplines
    Social Psychology
    Astrophysics
    Biochemistry

3. Fields are related to other fields
    Education and Religion

4. Skills, disciplines, and fields may all be viewed in historical perspective during a single period or comparatively across time
    a. Mathematics) (a) in the nineteenth century
    b. Chemistry)
    c. Religion) (b) in the nineteenth and twentieth centuries

5. Skills, disciplines and fields may all be viewed in a single region or across regions
    a. Mathematics) (a) in China
    b. Chemistry)
    c. Religion) (b) in China and Japan

6. Skills are prerequisites for disciplines
    a. Statistics and Psychology
    b. Language and Literature

7. Several disciplines may be focussed on a single field, historical period, or region
    Economics, Politics, Psychology, Anthropology
    Sociology may assist understanding of religion,
    the twelfth century, or Latin America

8. Various combinations of the above.

Many of the departmental interdependencies are acknowledged in "bridge" programs and "optional tracks" within departments. There is no compelling reason why existing resources could not be further recombined to offer areas of concentration which would furnish students a still wider range of possibilities than even now exist. The demand for a better organized interdisciplinary education has become a nationwide phenomenon. It has arisen out of two separate and sometimes contradictory sources: the knowledge explosion and the change in student educational objectives. The one motivates scholars, the other students, and their needs are not, of course, always the same. Both have imposed strains upon the department as the unit for the organization of learning. The knowledge explosion has led to the erosion of the shared knowledge and thoughtways which, despite differing "schools" in a given field, have traditionally sustained a community of scholarly discourse within departments. To pursue problems on the frontiers of research in almost any field, scholars increasingly must often acquire analytic equipment from another discipline. Hence, two scholars at different ends of a departmental spectrum may sometimes share more research interests with two outsiders in different disciplines than with each other.

Every department is enriched by the increasing multilateralism of its scholarship, and some of Princeton's departments (Philosophy and

Politics, as examples) have shown remarkable capacity for turning differences in method which elsewhere have produced bitter factional divisions into sources of fruitful diversity. In much the same fashion, social scientists and engineers discover common interests in the impact of technology on the environment, urban planning, the law, and life styles and discover that neither can solve its most fundamental problems without learning something about each other's disciplines, including their underlying cultures. Somewhere in this process of collaboration there emerges a new field which is no longer either pure engineering or orthodox social science but rather an emergent creature of both, which might properly be termed Social Engineering.

While the faculty's interest in interdisciplinary programs are thus professionally motivated, a quite different set of motives has been leading students in the same direction. Especially in the past decade, students have been defining their aims in education, not only in terms of pre-professional training, but also in terms of explorations of "life." Life and the problems of life, whether existentially or socially conceived, do not always fall readily into the inherited categories of departmental curricula. Departmental programs which to many faculty seem too broad seem just the opposite to many students: narrow and professionally specialized. What some of the most sensitive students want is an opportunity to explore questions which have ontic bite, using whatever disciplines might illuminate them. For the faculty, the opportunity is to give the ontic bite a sharp intellectual cutting edge.

To meet two different kinds of needs of faculty and students we must continue to find the points where new interdisciplinary interests of a group of faculty and the vital concerns of new students intersect. There we should build open frames to contain them. Any new programs in education, like new findings in scholarship, should, of course, bear the burden of demonstrating their intellectual weight. Yet, given the reality of a rapidly expanding interdisciplinary scholarship it would be appropriate to have this more formally recognized in our instructional program. Several measures could be introduced to achieve this end.

1. *The University should review the status of all interdepartmental programs in order to determine which of these might be established as areas of concentration, which should be retained in the present form, and which, if any, should be phased out.* The program format has sometimes been used at Princeton as a way of developing departments where none have existed (e.g. Anthropology and Biochemical Sciences). In other instances, programs such as American Civilization have existed for many years without achieving departmental status. Obviously, there is no special virtue in consistency but an administrative review of all interdepartmental programs would be appropriate at this time.

2. *As a general principle, programs might perhaps be established more easily and phased out more rapidly than has been true in the past. It should be possible for groups of faculty to establish undergraduate interdepartmental programs for a specified time period and then dissolve if the need for the subject area lessens or if faculty and student interest declines.* One of the great benefits of programs to universities is that they provide a means of responding to new intellectual developments as they occur without thereby assuming a long-range commitment. Moreover, since the total resources of the University are limited, no program should have a protected position in competing for scarce funds.

These suggestions still leave unsolved the two most crucial difficulties limiting the development of interdisciplinary major programs: the sense that departments "lose" faculty members who engage in extra-departmental ventures and that they should, therefore, be compensated for the loss. The idea of loss can only be overcome by the development of a new attitude about the relationship of the department as a professional corporation and as an instructional entity. Departments might think of themselves in part as reservoirs of scholarly resources to be deployed in a variety of extra-mural forms. It will take even longer to win acceptance for the idea that a faculty member engaged in interdisciplinary instruction is doing regular and necessary departmental work and should not be regarded as a missionary who has deserted his parish.

At the same time it is undeniable that a faculty member who is engaged in new and significant interdisciplinary ventures is not available to teach the courses for which he has been previously responsible. Princeton has exercised considerable intellectual and fiscal economy in limiting the number of courses and some departments are barely above the threshold of the number of courses required for a desirable "critical mass." Some flexibility can be (and has been) achieved by offering some courses in alternate years but the fact remains that in some cases any further reduction in "conventional" offerings would threaten the integrity of the departmental program. The problem of financing is thus crucial *and it may be necessary to establish a small contingency fund which could be made available to departments for the purpose of engaging temporary faculty to replace members of their staffs who are engaged in short-term interdisciplinary activity.*

Meanwhile, the Council on Humanities, perhaps with a somewhat augmented constituency, should continue to play a key role in providing adequate financing for interdisciplinary work in those areas in which professors in the humanities collaborate with each other or with faculty from other divisions.

The Council is, of course, already a center for interdisciplinary study in the humanities, sponsoring courses and programs which combine the interests of various departments. It could provide the administrative machinery for initiating and overseeing interdepartmental work; it could serve as a forum for controversial proposals; and its members could provide direct leadership in the areas of curriculum and teaching methods. With its traditions, its administrative structure, and its substantial financial endowment, the Council is an obvious vehicle for interdisciplinary proposals. It could be especially useful as a "bank" for interdisciplinary teaching time which does not appear on the budgets of individual departments and programs. Long-term financial commitments to interdisciplinary teaching could also be made through the existing structure of the Council.

At present, the Council acts as an important "honest broker" between the various interest groups in the Humanities, and it is situated in such a way that it might also play a dominant enlarged role in the future. The departmental and program representatives on the Council can be relied upon to exert a moderating force so there is no danger of the Council becoming warped toward any group of special interests. The Council would, therefore, seem to be the natural instrument for many interdisciplinary proposals that fall outside the province of traditional departments or programs.

CREATIVE ARTS

One area in which the University has made enormous progress in past years but which is not yet in our opinion sufficiently well-developed, are all forms of the creative and the performed arts. We attach the highest priority to expansion of these areas at both the curricular and extracurricular levels. The practice of the arts, and the teaching and study of that practice, have developed ways to understand phenomena of human behavior, and of the history of civilization, that are particularly suited and appropriate to modern universities—and can form a vital part of the education of undergraduates.

Any art may be seen as a medium for the transmission of important ideas and feelings; the various modes of communication within the arts may be seen as languages. Learning such languages involves study of the historical context of the original creation, questions of the transmission of style, and the perception of artistic conventions. These, in turn, must be supplemented by study of those techniques and craftsmanship that are organic to the whole artistic event.

The skills organic to a practiced art are instruments of criticism and guides to judgment, and they are irreplaceable extensions of the scholarly study of the arts through history and theory. As they are expanded in the Princeton curriculum, they should be seen in this light. The Commission does not recommend the development of such studies at Princeton as they might be developed in the context of professional conservatories, which are dedicated to the technical preparation of a small number of professional artists. Rather, we see the use of creative and practical work in the arts at Princeton in terms of the encounter such work provides for individual students—an encounter between a unique talent and will, and the disciplines, tools, and traditions of the art form at hand. Such encounters, on whatever level they may occur, provide intellectual and emotional growth. The teaching and the study of arts at Princeton should not take as a goal the development of professionally "qualified" artists (although students pursuing such studies may well find themselves prepared to continue such studies on the graduate or professional level); rather, we feel that it is time now to introduce to Princeton students a range of disciplines that offer, apart from professional skills, ways of perceiving civilization and the human mind that are quite different from the ways and means that prevail elsewhere in the academy.

Although the Commission hopes that Princeton will undertake detailed study of the possibilities for expansion in all the arts, we feel that the University should perhaps concern itself first with those artistic fields in which (1) most opportunity for constructive development already exists; (2) in which Princeton can develop programs particularly suited to its own physical and human resources; (3) in which the existing needs for change and development have already, for one reason or another, effected curricular and administrative modifications; and (4) in which the financial costs of such development can be shown to be reasonable and justified in terms of eventual goals, and in comparison to the costs of other needs within the University. *For these reasons, we recommend that the College should develop an expanded curricular program in the drama, with the possibility that such a program might eventually become a major. We also recommend the establishment of a credit program in film-making as well as film criticism and history, although final decision will depend on a careful estimate of costs.*

The study of film history and film making would require a commitment on the part of the University to the purchase and maintenance of equipment needed in these areas of work. The ongoing practical study of acting and other arts of the theater requires a similar commitment, in this case to the professional work in McCarter Theater—first, so that criteria of excellence can be maintained there equal to our standards in any other area of the University, and secondly, so that teaching personnel can be drawn from among the staff and company members. The adequate staffing of film courses would, of course, also be mandatory, even in preliminary stages of development.

Although the Commission is aware that financial considerations prohibit for the present any plan for a new physical facility for the use *of these and related practical studies in the arts, it is not too early to study our needs for the future, and to examine in detail the sort of facility that should be built in the perhaps not so distant future.* At the present, teaching facilities for the film and theater workshops and courses already in the catalogue are just adequate, and a new center for these studies should answer growing needs, and, for practical considerations, serve simultaneously developing professional work now housed at 185 Nassau Street and in McCarter Theater.

In this connection, it should be observed that facilities for extra-curricular work in theater are also inadequate. The Princeton campus' extra-curricular theater now includes not only Intime and Triangle Club, but a number of new and vigorous theatrical organizations frequently offering exciting work. The Commission does not recommend that curricular developments in the performing arts infringe upon or be necessarily connected with extra-curricular student work, since these activities can serve quite different ends. But there is no question that expanded University-sponsored work in theater—and in other arts—must necessarily have a beneficial effect on all such activity within the University. The Commission does feel that the Office of Admissions is to be commended for its increasing interest in young men and women with creative abilities, and hopes that this particular emphasis, in consideration of applications for admission to Princeton, will be carried even further.

INDEPENDENT WORK

Princeton is unique among major universities in that every student pursues two full years of individual, faculty-supervised independent work in conjunction with his major. This policy is extremely costly in faculty resources and in alternative uses of the students' time and it should be maintained only if it makes a particularly important and indispensable contribution to the achievement of our educational goals. Our strong conviction, after consulting with numerous members of the faculty and on the basis of lengthy discussion and survey evidence derived from students, is that the expenditure in time and money for senior independent work is fully justified. Given the choice of specifying the "single most valuable academic experience at Princeton" over 40 percent of alumni named the senior thesis. No other item was mentioned by as many as seven percent of the respondents in the total sample. (Table 5.8) It is not surprising that in their evaluation of departmental programs, seniors accorded the thesis the highest rating. (Table 5.7)

The Commission is, however, not convinced that a scholarly thesis as ordinarily defined is the only legitimate form of a culminating experience for every student. There are already options within some areas of the creative arts that allow other projects—a portfolio of paintings, a string quartet, a novel—to stand instead of a thesis. More conventionally, many papers now accepted as theses are not in the true sense research documents but critical analyses of secondary sources. But whatever the form of independent work which satisfies a department's sense of rigor and a student's interest, no undergraduate should be denied the satisfaction of executing an active, arduous, and ambitious "thesis" project during the final terms of his college years.

We are aware that some members of the community believe that not all the undergraduates are equally capable of profiting from their work on a senior project and that faculty time spent on less motivated students is purchased at the expense of those who are more apt to produce a meritorious final product. This position gains some support from nearly half of the most recent graduating class, among them 60 percent of those concentrating in the social sciences, who contended that they spent "too little time" with their advisers in the course of their senior independent work. (Table 5.9) It is difficult to know whether such students have unrealistic aspirations or whether in some instances they were inadequately served by their mentors, but it seems certain that if theses were limited to students enrolled in an "honors" program the honors students would have less cause to complain of neglect.

Even if it were true that more time could be devoted to thesis supervision if the College established an "honors" program comparable to those which exist elsewhere, testimony of the students themselves and our own observations lead us to believe that the senior project has inestimable value for nearly every undergraduate. It may be the only time in his life when he undertakes a sustained and coherent intellectual task which is truly his own. The benefit of independent work is derived from its being independent and its effects are to be measured not primarily by the distinction of the final work but rather by the process which produced it.

We are less persuaded about the critical importance of maintaining two semesters of junior independent study as an integral part of the area of concentration. By all indicators, junior independent work seems to be valued by a majority of students and most departments and in almost all cases the second term is an important lead-in to the work of the senior year. (Table 5.7) At the same time, if any of the recommendations of the Commission, such as the proposed requirement in English composition, an expanded program of independent concentration, more interdisciplinary ventures, or various pedagogical innovations, should tax the University's resources, we would not regard it as catastrophic if, as a result, we were obliged to eliminate one semester of junior independent work. Three consecutive terms of independent study is hardly scarce rations especially since the junior independent program is a source of concern in some departments. Indeed, departments might even now wish to consider whether during this period of increasing economic austerity, they might not regard the elimination of one term of junior independent work as a reasonable exchange for educational innovations which they might once have achieved by adding to their ongoing programs.

SENIOR DEPARTMENTAL EXAMINATIONS

By common consent, senior departmental examinations are the most problematic aspect of the area of concentration. Only a little more than a fifth of the most recent graduating class rated the comprehensive examination as particularly valuable. (Table 5.7) The objections to the comprehensive examination are partly substantive and partly procedural. It has been contended by some faculty and students that their areas of concentration are now so diffuse and multifaceted that no one, least of all an undergraduate, can reasonably be expected to reduce this buzzing confusion to some semblance of intellectual order. *We reject this view on the grounds that departments or programs which have experienced such diffusion ought still to aim for general coherence through "field" examinations or examinations related to the thesis which assist the student to perceive whatever underlying unity there is in the area.* Areas of concentration should exhibit strong elements of unity or they lose their claim to existence.

The timing of the current examination is, however, unfortunate. It is administered after students have submitted their theses during a period just prior to the festivities preceding commencement so that the entire exercise often seems irrelevant or anti-climatic. The College might wish to consider whether the Departmental Examination might not better be scheduled earlier in the heart of the academic year (some departments have already adopted this practice) at a time when the faculty can instruct as well as evaluate. This elementary reform would indicate that departments were serious about comprehensive examinations and students would be given the opportunity to benefit more from the experience of taking the examination.

Special Programs

The College has developed during the past few years a number of vehicles by which students can pursue their studies in new ways. The University Scholar Program which has been in existence since 1963 allows students to concentrate their work in a major field of interest, while foregoing ordinary requirements of their chosen department. Approximately 40 students a year enroll in this program and it has proved very successful. The Foreign Study Program which permits eligible sophomores, juniors, and seniors to study abroad in institutions of higher learning enrolled 16 students in the last academic year. More recently the College has approved a field study program that allows selected students to earn a term's credit for structured work off campus. About five to ten students a year execute projects which have varied from participant-observation of a Congressional campaign to work with various government agencies. Four years ago the College initiated a "semester-in-the-city" program closely related to the city of Newark which allows ten to 15 juniors every year to spend their spring term in Newark (this year shifting to Jersey City) working in various government departments. These students also receive a full term's credit for their field work. In addition to the actual work in agencies the students prepare for the term by taking a mini-seminar in the history and problems of the city they are about to visit and a full-fledged academic seminar during their term away.

A recently established urban work assignment program allows students to do the equivalent of a single course credit of work off campus in a selected employment situation. These have varied enormously and a good number of students take advantage of this opportunity. The recently initiated Woodrow Wilson Scholar Program in the Woodrow Wilson School allows selected seniors the opportunity to spend their entire senior year doing independent work without any course requirements at all. A small number (five or less) of students annually enroll in this program. The University has developed in conjunction with the State of New Jersey a teacher preparation program that allows undergraduates to qualify for public school teaching certificates at the time that they receive their undergraduate degrees. A specific curriculum has been designed in conjunction with the State and special arrangements have been made for practice teaching. Since the late 1960's between 20 and 50 students a year (recently even more) have been qualifying for teaching certificates in this way.

The University has also been responsive to the desires on the part of students to create their own individual majors outside of departmental or formally organized program areas. The Independent Concentration Program has been in existence since 1969 and approximately 20 students a year have been taking advantage of this form of concentration. A student interested in applying for the Independent Concentration Program does so through the office of the Dean of the College and he is admitted only after careful review, usually by the Associate Dean and a subcommittee of the Committee on Examinations and Standings. Every effort is made to assure that the program represents a serious effort and can be satisfied within the existing resources of the University.

The Commission has not examined any of these programs in great detail but we have the impression that each is proceeding with considerable vigor. The standard menu of University offerings seems sufficiently varied to satisfy the needs of most students but the special programs represent a welcome addition to the flexibility of the curriculum. Taken as a group they provide either the opportunity to test theory in practice or a means of pursuing special intellectual interests. *We endorse all of the special programs in principle with the caveat that their educational effectiveness should be periodically evaluated.*

PEDAGOGY

In the beginning there was the teacher. During every phase of his education from the freshman to the senior year an undergraduate will be exposed to distinguished senior scholars. The majority of introductory courses in every division are taught by tenured faculty and they are represented in these courses in proportions which considerably exceed their representation in the faculty population as a whole. (Table 5.10) In each year of study the Princeton student will spend about three-fifths of his classroom time in various forms of small-group instruction or laboratory work. By any reasonable statistical standard he seems pleased with his experiences. About three-fourths of all students rate the overall quality of their courses and the total academic experience as highly satisfactory. (Tables 5.11 and 5.12)

Class Size

Although we have nc measure of whether students prefer to be instructed in large groups, or in small, the evidence does suggest that their experiences in lectures have been better then preceptorials perhaps because the expectations have been different. In 1971-72 more than three-fourths of all seniors rated their lectures as "excellent" or "good," while only about a half assigned similar ratings to the preceptorials. The proportion of sophomores who gave preceptorials high ratings was even lower. (Tables 5.13 and 5.14) These findings suggest that there is no automatic virtue in small groups and that they will succeed only when such instruction is appropriate and directed by skilled discussion leaders.

It may be useful to recall the origins of the preceptorial. Joseph Strayer furnishes us with an admirable account of the metamorphosis of the system. According to Strayer,

> Wilson . . . . was almost entirely responsible for the adoption of the preceptorial system. He had outlined its basic idea years before he became President, and he presented the plan in full detail to a large alumni meeting in New York only a few weeks after his inaug-

uration. It took time to raise the money and to find the men whom Wilson wanted, but by the fall of 1905 it was possible to begin. From that date to the present, Princeton has boasted of her preceptorials. They have become the distinguishing mark of a Princeton education, the criterion by which undergraduates and alumni judge the excellence of Princeton teaching.

And yet preceptorials never functioned exactly as Wilson had hoped, and they departed even more widely from his projected pattern after he resigned as President. He had hoped that they would be a sort of group tutorial, in which undergraduates read widely in a broad area of knowledge without worrying about weekly assignments or the memorizing of specific facts. He wanted to 'give up the schoolboy idea that men are to be examined upon lectures and upon text-books, and come to the grown-up idea that men are to be examined upon subjects.' The preceptors were to be 'the companions and coaches and guides of the men's reading.' They were to suggest books and articles, but 'exercises with preceptors are not to be recitations, but conferences.' The preceptors should say, in effect, 'You may report to us from time to time, you may consort with us every evening, we are your companions and coaches in the business, we are at your service.' As far as possible 'men of like training, aptitude and needs' were to be grouped in preceptorials and the same teacher would guide several of these homogeneous groups throughout all the departmental work of junior and senior year.

Like some of Wilson's later political proposals, this educational reform demanded a little too much of human nature. The undergraduates wanted to know exactly what they were responsible for; they preferred specific assignments and regular discussion of the basic facts in a course. They undoubtedly read more than they had before, but, if they moved beyond the textbook level, they were still content with broad surveys and general discussions of difficult topics. The wide freedom of choice allowed by the new plan of study made it impossible to maintain the principle that preceptorials were not to be tied to specific courses. What was to be done, for example, with the student in English who took a cognate course in History? He could not be placed in the same group with men who were taking two or three other social science courses; a separate preceptorial dealing only with one course had to be created for him.

Even more disrupting was the fact that Wilson was asking too much from his preceptors. They were supposed to have a good general knowledge of all subjects in their department, a requirement which approached absurdity in some cases. For example, History, Politics, and Economics formed one department and few preceptors

> felt equally at home in medieval history, international law, and money and banking. A man who took his preceptorial duties seriously would have had little time for research, or even for preparing lectures in advanced courses. Those who wished to acquire special competence in one or two fields had to make arrangements which allowed them to concentrate their preceptorial work. This again tied the preceptorial to individual courses rather than to the departmental work as a whole.[20]

For some time now, the preceptorial has been essentially a small discussion group which is conducted as an adjunct to lectures in established courses. This form of instruction is very valuable in some courses and inappropriate in others. Indeed, both economic constraints and educational philosophy have for some time joined to suggest that diversity is preferable to any institutional commitment to a single "optimum" pattern.

A lecture is still an excellent way to place a gifted teacher at the disposal of many students who would otherwise have no access to him; lectures are, moreover, the economic guarantors of preceptorials, seminars and tutorials. Since "optimum class size" varies with the nature of the participants and the aims, methods, and contents of the course, students should be exposed in the course of their education to groups of varying size. *Departments should consider under what circumstances it might be desirable to teach some courses exclusively as lectures and to use the resources thus saved to introduce additional small group instruction, perhaps even tutorials, in contexts where they would be most effective.*

In rethinking the issue of class size, departments should bear in mind several matters of educational policy and evidence:

1. Every student at Princeton should ordinarily have the privilege of enrolling in any course for which he is eligible.
2. Variations in class size have no predictable effect on measured cognitive or affective behavior. The experimental evidence in this area continues to yield the melancholy finding, "no significant differences."[16]
3. More than 80 percent of all students questioned in the Undergraduate Survey selected some figure above 100 as the maximum tolerable size for a lecture and three-fifths believed that for this form of presentation "size does not matter." (Table 5.15) About 85 percent of all undergraduates chose a number between eight and 15 as the upper limit for a small discussion group such as a preceptorial with the modal number at ten. (Table 5.16)

In sum: Various lines of evidence converge to suggest that large lecture groups are acceptable to the overwhelming number of undergraduates, that students have high regard for the quality of the lectures, but that they also value discussion groups of very modest size. In the absence of firm evidence as to what size of class is most effective for what purposes, the College will have no alternative than to establish policy largely on the basis of the experiences and preferences of faculty and students as constrained by resources. Our confidence in our own judgment will increase in proportion to our willingness to engage in continuing experimentation on the educational consequences of exposing students to classes of differing size.

LABORATORIES

The lowest rated mode of instruction is the laboratory. Only one-third of the sophomores and seniors who completed the two- and four-year evaluation forms rated their laboratory experience as better than fair and only about 55 percent of those who completed the student course evaluations in 1971-72 said that the laboratory "contained the right amount of structure and guidance by the instructor." Since these data do not distinguish between science majors and others it is conceivable many of the negative responses come from students who are reluctantly completing distribution requirements. In view of the previous discussion the Commission recommends *that each department should review its mix of teaching structures—lectures, preceptorials, laboratories, seminars, tutorials, and others—in order to determine what constitutes the optimum mix. The status of preceptorials and laboratories should receive special attention.*

EXPANDING THE PEDAGOGICAL REPERTOIRE

The most striking characteristic of teaching methods at Princeton is their stability over time. Now as in yesteryear for the most part we lecture to large groups, hold discussion with small groups, and conduct tutorials with individual students in connection with independent work. It can be said that the "laboratory" experience which has hitherto been largely confined to the natural sciences has of late been extended to the social sciences as well. Aside from this conception of the community as laboratory, the pedagogy of the present resembles nothing so much as the pedagogy of the past.

The limited repertoire of current educational methods led the Commission to investigate to what extent, if at all, Princeton should take note of the technological revolution in instructional practices which has emerged in the last few decades.[21] Electronic advances have enabled inventors with an educational purpose to design machines which themselves teach or help monitor the teaching of others. Films are now sufficiently small to store easily and to make playback more convenient and less expensive. The television industry has discovered ways of transmitting more signals to more receiving sets and these formidable advances show no signs of abating.

The advantages generally claimed for various kinds of instructional technologies include their capacity to increase teacher productivity, to individualize instruction, to relieve the teacher of routine and repetitive tasks, to speed the rate of learning, and to create the basis for a scientific theory of instruction. These claims are thus far mainly promises since instructional technology in higher education is a relatively new phenomenon and there have been few systematic studies of its effectiveness. At the same time, the promises themselves are intriguing.

The range of educational technologies includes television, the computer, radio, cassettes, film, telephone, and videotape. Of these, films are perhaps the most frequently used at Princeton; the telephone is employed in the VERB program of continuing education in the School of Engineering; and videotape has been useful in furnishing instant playback to practice teachers in the program of teacher preparation.

Some of the new devices may be thought of as potential replacements for teachers, as additions to the library, or both. One can imagine, for example, that a lecture on Shakespeare could be televised to students assembled in a class with live faculty acting as preceptors and discussion leaders. Or a flesh and blood instructor lecturing on Othello might assign not only appropriate commentaries but he might also direct the students to view the Laurence Olivier and Orson Welles films. In either case, educational technology must be measured against its opportunity costs. The advantage of prerecording a television presentation or making a film is that it can be executed by the best person on one's own faculty or elsewhere, employ visual aids which make the material more vivid, and can be preserved unto perpetuity. In short, it can be made by the best, made better, and made to last. However, it is questionable whether the opportunity to use replays should be regarded as an unqualified advantage. In principle, if not always in actuality, lectures on Othello as well as those on molecular genetics are revised as new scholarship is brought to bear on the subject or the teacher himself develops new insights. But even if this is not the case, a television tape which becomes a surrogate professor may be efficient as measured by "faculty contact hours" but it serves on no committees, advises no students, and does no research. If, on the other hand, a televised presentation or a film is used as supplementary material it must compete for scarce funds with books and every other teaching aid.

From a purely economic standpoint, then, television, the most glamorous of all the technologies, seems ill-suited to Princeton's purposes. The costs of owning the facilities necessary for closed-circuit transmission on campus would range, depending on the sophistication of the equipment, from between $200,000 to $500,000. If the University sought to produce programs on facilities that it did not own, costs even on educational channels would come to between $6,000 and $8,000 per broadcast hour during prime time when the University is in session. Quite obviously, given our modest size, such sums far exceed our capabilities.

Economic constraints also limit the uses which can be made of computers for educational purposes. Two major approaches may be distinguished: (1) instruction which is guided wholly or in large part by the computer, for example, computer-managed and computer-assisted instruction; (2) instruction which employs the computer as an adjunct to classroom study including large data-base inquiry, simulation, problem-solving, and laboratory data analysis.

Computer-assisted instruction (CAI) allows the student to interact with the computer. In a typical CAI situation the machine feeds the student a lesson, problem by problem, and then waits for him to reply. In some programs, the machine may turn itself off if the student responds too slowly or it may offer hints at the student's request. Language programs often allow time for practicing a sentence aloud before the exercise is continued. The most sophisticated programs are individualized; that is, the student can chose "strands" or exercises based on a common theme instead of following a single route prescribed for all.

In computer-managed instruction (CMI) the student works with texts which are especially designed to allow the computer to supervise his progress. The computer scores his work and prepares reports which enable an instructor to pinpoint difficulties, assess the need for remedial tutoring, evaluate the adequacy of teaching materials, and orient his presentations to the level of class achievement. CMI is thus primarily a diagnostic and evaluative tool.

These systems are both extraordinarily expensive, the "software" is relatively primitive, and they are best suited for instruction in tangible skills rather than for more subtle mental operations. For the time being, undergraduates should learn how to use the computer but the machine is not yet qualified to teach them.

The computer is, in fact, used in 63 undergraduate and 41 graduate courses, primarily as an aid to various forms of problem-solving. (Table 5.17) All told, about seven percent of all undergraduate courses and about 25 percent of all undergraduates have some work with computers. It would be desirable to expand this number by encouraging more students to take instruction on the computer on a voluntary basis. The computer, perhaps as much as any technology yet developed, is an increasingly influential force in shaping our society. It is especially important, then, to provide more undergraduates with some conception of the way computers function and its broader social consequences. Not the least of the benefits of this type of exposure is that it might overcome the sense of deferential awe with which many now approach "computer-designed" commercial and intellectual products.

As part of their liberal education, more students should be encouraged to enroll in existing and newly created courses that would expose them to an elementary knowledge of computer logic and hardware, some familiarity with the actual processes of programming, and a more profound understanding of the role of the computer in modern life. In addition, the University should investigate the feasibility of installing some time-sharing terminals in common rooms on the campus. The resulting increase in interest in all phases of computer operation might be well worth the cost.

The development of cassettes contains the promise of exciting future events. These plastic-encased films are relatively small and do not create serious storage problems. At present, however, casette hardware is not yet fully perfected, playback equipment is not entirely reliable, and tapes made by rival manufacturers are seldom compatible with the playback equipment of their competitors. Audio cassettes which are relatively inexpensive, about $60.00, might nevertheless, prove useful to students who wish to record lectures as well as take notes. Those so inclined could avail themselves of the most powerful of all study aids, the actual lecture as originally presented.

We suspect that the most profitable immediate approach to the use of educational technology would lie in the expansion of film services. Currently, interested members of the faculty proceed on their own initiative and obtaining films for classroom presentation can be a harrowing experience. Except for the few departments which maintain their own equipment most must rely on the scarce resources of the Audio Visual Center. (Table 5.18) It would seem that in addition to a new language laboratory which is now under discussion more projectors and accessories of all kinds will be required in the future. Apparatus aside, the more pressing question is how to make films available to those members of the faculty who wish to use them. The original cost of an extensive film library comparable to the best collections is in the neighborhood ot about $1,000,000. *It would seem, then, that the most the University could attempt in the immediate future is to engage a film librarian who would be responsible for disseminating information about available materials and arrange for renting films according to procedures roughly analogous to those involved in interlibrary loan.* This service would provide easy access to film-rental agencies and the great university film libraries. A major difficulty with this procedure is that the film could not be viewed in advance. A small collection of film "verities" (those which remain in demand) purchased each year might furnish the basis for the gradual accretion of important films.

The Commission concludes that the University should proceed very cautiously in adopting technological devices. As Margaret Mead has counseled we should make major investments in these machines when they are "as foolproof as washing machines" and, we should add, "as useful." Most of the available devices have enormous promise but neither their "hardware" nor, even more important, their "software" yet meet Mead's criterion. For the immediate future, the expanded use of films should attract most of our attention. Nevertheless, the Commission urges *the College to observe the consequences of educational technology as new devices are introduced elsewhere. During the next decade much of the educational technology which is now merely "promising" may actually realize its potential.*

GAMING SIMULATION

The recent development of gaming simulation as a pedagogical technique has made it possible to combine a variety of desirable educational objectives including high motivation, interdisciplinary cooperation, and a better comprehension of the dynamics of complex systems. The advantage of gaming is well-illustrated by APEX (the Air Pollution Exercise), a game developed at the University of Southern California and now in use in the School of Engineering. The following explanation of the game appears in a report issued by a group at Research Triangle Park, North Carolina:

> In gaming simulations it is possible to reduce the time span of reality, so that significant experiences which might take years can be lived through in weeks, days, or even hours . . .
>
> The simulated environment of APEX includes a basic set of data about population, employment, land use, public facilities, air characteristics, and activities of non-gamed industries, land developers, and political jurisdictions . . .
>
> A set of gamed decision roles [. . . industrialist, developer, urban planner, politician, and air pollution control officer . . .] is built around this simulated environment with critical interactions among roles as well as between each role and those parts of the environment which affect it most. The environment provides the opportunities, problems, and issues with which the roles must deal. . . . Their decisions will have an impact on the environment, and the environment will "bite back," facing them with decisions about problems and issues created or intensified by the earlier actions.[22]

The APEX game is one of the most advanced of its type and has been used as an educational vehicle at other academic institutions. Although its main function is to introduce air pollution as the technological factor, the game program is readily modified to include such items as water pollution, energy conservation, transportation, waste disposal and urban planning. More importantly, however, the models which influence the decision-making process are readily modified. Thus, as our expertise grows, Princeton's faculty background in politics, economics, urban planning, etc., can be used to change the model and to alter the various roles in the game so that they relate to the regular course work given in these areas at Princeton. Gaming simulation seems to be among the more valuable recent additions to the repertoire of teaching devices and its further use should be investigated and perhaps extended into appropriate areas.

THE LENGTH AND TIME OF COURSES

At the present time, almost all courses operate under similar time constraints. Except for laboratories, class sessions are each one hour and meet three times a week over a twelve week period. Many offerings would benefit from a more flexible format which would allow terms of varying length and courses which for one or another reason could make use of variable blocks of time in any given week throughout the semester.

One comparatively simple but effective change would entail the introduction of half courses of six weeks' duration. This innovation would give structural recognition to the fact that not all offerings require equal time. Indeed, it is rumored that by the ninth lecture some courses have exhausted both their intellectual content and the patience of the students while in others the lecturer has once again abandoned any hope of ever reaching the materials printed in the last two-thirds of the syllabus. The introduction of half courses would permit us to dispose of the myth of intellectual parity by enabling departments to schedule courses singly or in combinations that would extend for six, twelve, eighteen or twenty-four weeks.

Short-courses, however, have uses of their own. They could be appropriately employed in treating: (1) materials that have a natural break, such as the Roosevelt era, pre and post World War II; (2) works of a single person such as a social theorist, writer, or artist; (3) a concept, such as "creativity," "progress," or "pluralism"; (4) "classic" problems in a discipline; (5) events during a brief historical period, such as Russia during the Kerensky interlude; or (6) instruction in specific skills, such as Fortran.

The Woodrow Wilson School has experimented with this format at the graduate level and apparently with some success. Although some students find that the half course is too short to explore in depth topics of any complexity, this criticism is by no means frequent and is not stated at all about those offerings which are focused and well-organized. Some students found that six weeks was not long enough to do outside reading or anything beyond the most minimum requirements. Judiciously selected reading lists can be helpful in offsetting these constraints. Finally, short courses are not well suited for writing meaningful research papers and in those offerings where instructors chose to assign papers rather than to rely on examinations this criticism was made with some frequency.

Favorable comments outweighed criticisms. Many students appreciated the opportunity to study a subject in depth but at less than semester length, especially the development experiences of specific countries or regions. Short courses on techniques or methods of analysis, such as project evaluation or economic planning in developing countries have been particularly successful.

A number of interesting innovations have emerged from the Woodrow Wilson School's experiment with the half course. Certain professors continue to supervise projects that students have begun during the first six weeks. Those students who have taken advantage of this opportunity report that they find this a very effective method of combining exposition by the professor with their own research efforts. Students in some courses have used the second six-week period to develop group projects and have regarded the limited time available as very helpful incentives to work under what might be future professional time constraints.

Various departments might also wish to experiment with formats other than the customary two-hour lecture, one-hour preceptorial or one-hour lecture, two-hour class pattern. For example, in one course in the social sciences a full course of 24 lectures was offered during the first half of the term while the second half was reserved for seminars to which students brought greater knowledge and perspectives. In effect, this format provides two short courses, one introductory and the other advanced. One can imagine still other possibilities. For example, it might be interesting to begin the term's work with several weeks of reading and no classes whatever followed by a period of concentrated lecturing of perhaps a month to a class that already had some background in the basic materials. The semester could end with an interval that permitted the writing of papers and the completion of projects.

It is now possible to schedule such sessions in blocks of two or three hours by meeting in the afternoon hours when laboratories are usually scheduled. If enough faculty found it pedagogically advisable to experiment with various formats it would probably be necessary to organize some part of the week in an unorthodox scheduling format. During the early part of the week, for example, Monday through Wednesday, the current scheduling day would be maintained as at present with morning hours reserved for classes and the afternoon allotted to laboratories. Thursday and Friday would be organized with two sets of double hours in the morning and with triple hours scheduled in the afternoon. This combination of "vertical" and "horizontal" scheduling would provide a sufficiently flexible format for any conceivable range of alternative approaches on how best to bring the structure of a discipline and the structure of pedagogy into harmonious alignment.

AN EXPERIMENT IN STUDENT-LED SEMINARS

An important purpose of all teaching is to free the student from his dependence on the teacher. The curriculum should proceed in an orderly sequence from general to specialized study and from guided to independent learning. In this connection it may be observed that senior independent work is almost but not quite independent. The relationship between an adviser and a student often reflects an intellectual paternalism, albeit of the best kind. The master addresses the disciple, experience speaks to youth, and knowledge confronts ignorance. But if, as we profess, we are dedicated to the proposition that one major function of an undergraduate education is to develop the competencies and commitments that lead to a lifetime of study, we are obliged to confirm our seriousness by providing students time to rehearse in advance of the event. In their capacity as citizens Princeton alumni will be called upon in a variety of circumstances to acquire some knowledge by themselves, to learn together in groups, and upon occasion to serve as leaders, and therefore teachers, who share their wisdom with those who are less well-informed. These are skills as difficult as any and students should be encouraged by the terms of the formal program to begin to master them while they are still undergraduates.

Specifically, the Commission urges that *the College should consider the feasibility of introducing, on an experimental basis, student-led seminars. The experiment would have a definite expiration date and include provision for careful evaluation.* This proposal is based on the assumption known and accepted by virtually all members of the faculty that teaching is the most effective of all learning devices. Professor John Darley has been for some time now engaging undergraduates as discussion leaders in his course in social psychology. All the participants have previously completed and excelled in the course, receive course credit for their efforts, and are prepared for their new task in weekly coaching sessions led by Professor Darley. This procedure is to be commended and other faculty might consider similar practices.

But an additional step entailing somewhat more risk would nevertheless be warranted. We have over the years become accustomed to student-initiated seminars under faculty guidance and control. The student-led seminar would in every respect be similar except that faculty would be restricted to evaluating performance at the conclusion of the course. According to this plan, a student group with perhaps a minimum membership of six and a maximum of 15 would petition the Course of Study Committee for permission to take an optional additional course—a student-led seminar. (A student could join such a group only once.) The formal application would include a detailed syllabus together with a proposal on how the course might be evaluated, the name of a student designated as the leader, and a faculty sponsor who would undertake to evaluate the performance. The leader could consult with the faculty member but there would be no other faculty intervention except for reading papers or grading examinations. While it would not be possible to compare the achievements of student-led seminars with a control group, less formal research procedures should yield dependable insights as to the results of this innovation.

It is conceivable that students would treat student-led seminars lightly. We have guarded against the contingency by stipulating that they shall enroll in these offerings only as an optional additional course. It would be difficult to think of a better indication of their seriousness. And if, out of inexperience and unfamiliarity with novel patterns of independent study, they fail to learn all there is to be learned, "failure" is sometimes more instructive than success.

SUMMARY OF RECOMMENDATIONS

1. The curriculum should retain all of the major components of the current program including distribution requirements, electives, and an area of concentration which includes independent work and senior comprehensive examinations.

2. All candidates for the Bachelor of Arts degree should be expected to satisfy a one-term requirement in English composition and to develop proficiency in a foreign language. They are also required to distribute two one-term courses in the natural sciences and six one-term courses throughout the rest of the curriculum.

a. A suitable examination in written English should be administered to every freshman. Students who fail to meet acceptable levels should be enrolled in an introductory course. All others except those who demonstrated unusual competence should be enrolled in a writing course offered by appropriate departments in the humanities and social sciences including perhaps English, Creative Writing, History, Philosophy, Politics, Sociology and others. Each student would write frequent short papers on topics that would vary with the discipline but the chief emphasis would be on developing style, clarity, and power of expression rather than on mastery of a large body of materials. The responsibility for coordinating freshman composition courses should reside in the Department of English.

b. All A.B. candidates shall ordinarily be required to demonstrate proficiency in a foreign language either by completing a course at the 107 or 108 level or by demonstrating an equivalent level of competence. The Dean of the College shall have discretionary power to grant exemptions for a "specific language disability" and for other causes including limited linguistic aptitude or other compelling educational reasons. The Dean should be authorized to grant outright waivers or to specify alternative experiences (e.g. courses in a culture area, study of linguistics, literature in translation) which yield some of the benefits derived from instruction in a foreign language.

c. The natural science requirement may be satisfied by distributing any two designated courses in Astrophysics, Biochemistry, Biology, Chemistry, Engineering, Geology, Physics, or Psychology.

The Committee on the Course of Study, in consultation with an interdepartmental committee on the natural sciences appointed by the Dean of the College should:

(1) designate which departmental offerings shall be listed as distribution courses;

(2) develop guidelines indicating recommended combinations of courses within and among departments;

(3) consider how the laboratory component might be appropriately modified; and

(4) devise standards and procedures for granting exemptions from the requirement.

3. The University should continue and expand its commitment to interdisciplinary studies by adopting the following policies:

a. The University should review the status of interdepartmental programs to determine which of these might be established as areas of concentration, which should be retained in their present form and status, and which, if any, should be phased out.

b. Some interdepartmental programs for undergraduates might be established for a specified time period and then dissolved if the need for the subject area lessens or if faculty and student interest declines.

c. A small contingency fund should be established which could be made available to departments for the purpose of engaging temporary faculty to replace members of their staffs who are engaged in short-term interdisciplinary activity.

d. The Council of the Humanities should be encouraged to continue to play a key intellectual and financial role in fostering interdisciplinary programs.

4. The College should develop an expanded curricular program in the drama, with the possibility that such a program might eventually

become a major. We also recommend the establishment of a credit program in film-making as well as film criticism and history, although final decision will depend on a careful estimate of costs.

5. The College should improve its current pedagogical practices by adopting the following policies:

a. Each department should review its mix of teaching structures—lectures, preceptorials, laboratories, seminars, tutorials and others—in order to determine what constitutes the optimum mix. The status of preceptorials and laboratories should receive special attention.

b. A film librarian should be engaged to maintain film catalogues, inform the faculty of the availability of audio-visual materials, assist in the ordering of materials, and act as a curator of a small collection of films.

c. As part of their liberal education, more students should be encouraged to enroll in existing and newly created courses that would expose them to an elementary knowledge of computer logic and hardware, some familiarity with the actual processes of programming, and a more profound understanding of the role of the computer in modern life. In addition, the University should investigate the feasibility of installing some time-sharing terminals in common rooms on the campus.

d. Departments should consider the desirability of introducing six-week half-courses and experimenting with formats other than the one-hour, three days per week pattern.

e. The College should consider the feasibility of introducing, on an experimental basis, student-led seminars. The experiment would have a definite expiration date and include provision for careful evaluation.

CHAPTER 6

Evaluation of Performance: Students and Faculty

CONTENTS

- EVALUATION OF STUDENTS
  - *Problems Associated With Certification*
  - *The Grading System*
    - LETTER GRADES
    - HONORS' SCALES
    - PASS-FAIL
    - "RETROACTIVE" AUDIT
    - PERFORMANCE GRADING
    - GRADE DISTRIBUTIONS
  - *Diagnostic Evaluation*
- EVALUATION OF FACULTY
  - *The Teacher*
  - *Pedagogy*
- INSTITUTIONAL RESEARCH

Academic evaluation serves a variety of major and subsidiary purposes including the inducement of quality, certification, diagnosis and counselling, motivation, and control. Certification refers to credentials which assure the wider community that students, faculty, or universities have met socially valued standards of academic proficiency. Diagnosis, by contrast, is mainly intended for internal use, is essentially an extension of the instructional process, and includes all those procedures which are designed to inform individuals and the institution how well they are achieving their educational goals. Since the formal power to judge and admonish may also be the power to grant or deny access to worldly goods, reputation, or self-knowledge, evaluation is a strong inducement to learn and improve.

During the past decade a new generation of influential educational critics have regularly deplored the entire apparatus of degrees, requirements, credits and grades. The burden of their message is that conventional systems of evaluation subvert the collegiate enterprise. Reliance on systems of evaluation is said to reflect a near-obsessive preoccupation with "credentialism," a failure of will and imagination in assessing teaching effectiveness, and a curious reluctance to discover in what ways and in what measure colleges affect the lives of students and the history of societies. This now familiar indictment invites inquiry as to our own theory and practice of evaluation as it applies especially to students and faculty. In each case the central questions are: Who, if anyone, shall be evaluated? For what purpose? By what methods? By whom?

EVALUATION OF STUDENTS

Shall Anyone Be Certified?

By commencement day, the college graduate will have passed through an advanced check-point in a journey that began in the first year of elementary school when he demonstrated his "readiness" for the "fast-reading" group. In due time he would be assigned to the "advanced track," the "academic" curriculum and the "honors" section. Meanwhile he will have been encouraged to try his hand at a variety of extra-curricular activities designed to persuade the Admissions Office that he is "interesting" or "well-rounded," whichever was then in fashion. En route to the baccalaureate he will have endured countless tests of his memory, aptitudes, and achievements and as part of the rites of passage to each successive level of education he will be obliged to triumph over an appropriate adversary such as the Regents', SAT, or the Graduate Record Examination. The survivors are duly certified as eligible to run the course yet again or to begin their careers.

This protracted period of trial and advance is regarded by some as a test of character and by others as the defeat of education. It is perhaps best viewed as a regrettable necessity. The case for continuing evaluation and ultimate certification rests on a variety of "pure" and pragmatic considerations. There is surely a sense in which Commencement resembles a High Mass and the ceremonial award of degrees a sacramental rite which reaffirms the most sacred values of the Academy. The university is, however, very much of this world. It has extensive obligations to its own students, the larger educational system, and the total society to which it is ultimately accountable. In the most general sense a system of evaluation provides information which guides decisions on how to make best use of social, educational, and human resources.

All advanced societies rely on higher education to prepare the young for adult tasks particularly those involving occupational skills requiring a lengthy period of specialized training. This generalization holds even when, as in the case of perhaps one-third of all past Princetonians, the baccalaureate is the terminal degree and there is no immediately discernible link between one's college "major" and one's future vocation. The Princeton experience, it is hoped, contributes to the cultivation of the supple and humane intelligence that is the indispensable condition for achievement in any field. For the majority of students there is a more obvious connection between curriculum and career. Upon graduation they will seek further academic or professional training or, sometimes as with engineers or secondary school teachers, many will begin work in their chosen fields.

Viewed from the perspective of the graduate the bachelor's degree symbolizes the completion of one crucial phase through which individuals earn the privilege of practicing their craft. From the university's standpoint the degree is a pledge to the wider community and to other educational institutions that the college has insisted on adherence to demanding intellectual standards. The university's willingness to certify performance constitutes formal recognition that its responsibilities extend beyond its own immediate domain.

The university might nevertheless seek relief from its obligation to issue scholarly credentials if on balance its evaluation procedures seriously undermined its educational mission. The most common arguments against "credentialism" may be summarized as follows:

1. The university guards the entranceways to career and station and hence receives unwilling captives whose primary concern is certification

rather than learning. Evaluation thus debases education by imposing extraneous motives on the pure quest for knowledge.

2. The professor's control over the student's life-chances endows him with the power to penalize independence, creativity and dissent.

3. The certification process deflects attention from important educational outcomes which can neither be taught nor measured. "If such a thing as a college degree for survival in the future were possible," writes the prominent educational theorist Judson Jerome, "it might ask for evidence that one could cooperate, trust, love easily and unconditionally; overcome jealousy, possessiveness, aggression, competitiveness; understand and cherish natural processes; develop a capacity for searching inquiry and creativity; cultivate enduring relationships; understand what is not, as well as what is said; acknowledge and value emotions; rid the self of affectation, hypocrisy, arrogance; fill time with joy; communicate by extrasensory means; experience elementary mysticism; achieve cosmic consciousness.

"If any professors have read this far they are probably, and understandably, scoffing. It is unlikely that as professors we can teach such things. Asking an educational institution to do so is like asking an automobile manufacturer to produce horses."[1]

These charges are all the more disturbing because they are partially accurate. Many would prefer that the campus would be more insulated from the ways of the world and that the university should exist as an island of virtue in an unchaste universe. At the same time we can hardly deplore the fact that knowledge is unavoidably useful and confers rewards upon its possessors.

It is difficult to imagine a modern society which failed to make some provision for discovering which of its members was best qualified to perform its important tasks. If the college declined to certify performance there are, of course, alternative means for recording academic progress but judgments made by public agencies based on interviews, individual recommendations, and externally administered standardized tests should be no more palatable to opponents of degrees and grades. Brief interviews place a premium on verbal facility, charm, and gamesmanship; recommendations are based on the testimony of a small sample specifically chosen for its favorable bias, and reliance upon these would reward students who cultivate their professors; and, standardized tests are as unreliable as grades and at least as stultifying to the curriculum. Thus, judgments influencing the lives of individuals and the welfare of the nation would not only be rendered in the absence of relevant information but the resulting deficiencies in the accuracy of evaluation would not be balanced by compensatory educational gains. Exclusive reliance on external agencies would impose rigidities on the educational program, define the content of the syllabus and heighten anxieties of students, which is to say, it would intensify rather than lessen the dysfunctions of the present system. In view of all of these considerations and while acknowledging the importance of guarding against the dangers intrinsic to any "certification" process, we nonetheless recommend *that the College shall continue to award the degrees of Bachelor of Arts and Bachelor of Science in Engineering.*

On What Basis Shall Degrees Be Granted?

If the desirability, or at least the inevitability, of evaluation and certification is conceded, degrees could be granted on the basis of (1) a residence requirement alone, (2) a test of competence administered at the end of the course of study or at less frequent intervals or (3) specified requirements including a substantial number of courses evaluated by grades.

The idea of establishing a residence requirement as the sole "requirement" for the degree has some appeal. It would permit students to allocate their time and effort according to their own sovereign inclinations in an atmosphere of minimal institutional intervention. Nevertheless, the same logic which impels the university to restrict admission to those applicants who are best able to benefit from and contribute to a Princeton education requires some monitoring of their performance once they have arrived on campus. To do less would be to risk squandering the university's scarce and precious resources and to commit an injustice to the large number who sought and were refused admission. Some students would doubtless thrive in an atmosphere of unrestricted freedom, and would know how to balance the discipline of study and the attractions of leisure. At the same time one suspects that the greater number are responsive and ultimately grateful for some form of institutional guidance.

It has been suggested that the pervasive consciousness of grades could be reduced if individual courses were offered on an ungraded basis and students were required to demonstrate proficiency purely by some such means as one or more comprehensive examinations. Since this alternative delays the day of reckoning it is subject to many abuses associated with a residence requirement and has the additional failing of creating severe anxiety. Academic success, however defined, should not depend on several climactic all-or-nothing performances. The drama and tension that accompanies such events are hardly conducive to the disinterested pursuit of knowledge.

We conclude, therefore, *that the integrity of the educational process is best protected by a system which provides for relatively frequent* *evaluation and a large number of observations. As a matter of ordinary practice grades should be awarded in each course, for independent work, and the Senior Comprehensive Examination.*

The Internal Uses of Grades

A report by the Committee on Examinations and Standing in 1969 well summarizes the principal internal uses of grades.

1. *Evaluation of progress towards a degree.* Given the assumption that admission to the university, coupled with some residence requirement, is not sufficient grounds for granting a degree, some measure of a student's growth, development, or accomplishment is needed. The current system employs the academic year as the unit of work to be evaluated. Whether or not individual courses during that year are graded, some evaluation of that year is needed in order to permit the university faculty and administration to identify students who are in difficulty. Similarly, some form of evaluation is necessary in order to determine which students are to be considered eligible for the degree. Without some form of evaluation which represents accomplishment over a period of time, the degree would have to be replaced by some form of certification of attendance or residency.

2. *Decisions concerning program entrance, curriculum design, admissions.* Administration, faculty (and students as well) now use grades, to some extent, as information relevant to a wide variety of decisions. These include decisions concerning: admission to academic programs of one sort or another (e.g., Woodrow Wilson School, Junior Year Abroad); eligibility to enroll in advanced or graduate courses; course or curriculum effectiveness; utility of various college-admissions procedures. The relative success of our programs for various student groups, such as alumni sons, 'high risk' admittees, athletes, mid-career fellows, to list but a few, is evaluated, at least in part, in terms of grades. Without grades, such decisions would become far more difficult and time-consuming. One could, indeed, question whether or not informed decisions could be reached if grades were unavailable. Any serious proposal to eliminate grades must consider alternative informative elements that could be relied upon for the many decisions that must be made, and are made, almost daily.

3. *Determination of academic awards.* The University confers a number of prizes and awards in the form of election to honorary societies (Phi Beta Kappa, Sigma Xi), awarding of Departmental Honors, and various and sundry Prizes. Unless we are willing to abandon these sorts of recognition we cannot dispense with evaluation systems entirely.[2]

Shall Non-Cognitive Goals Be Formally Evaluated?

Colleges have traditionally professed interest in a variety of noncognitive educational outcomes including personality development and the formation of values and attitudes. Some have argued that a serious commitment to those objectives should be reflected in the evaluation system. For example, one writer contends that "students are asking in some instances, if it is possible for them to be judged as persons, or perhaps not be judged at all."[3] If these were indeed the only alternatives we might well choose to abandon any type of formal certification.

Academic evaluation does imply approval for some values and personality types but in a very general and limited sense. Obviously, a passing grade requires that the student shall not have behaved in a manner that leads to his expulsion from the community. More positively, successful academic performance requires diligence, tenacity, and discipline and it is hoped some basic commitment to such values of the scholar's craft as skepticism, generosity, and cooperation. The university is nevertheless properly reluctant to incorporate measures of personality and values into the official system of evaluation.

There are several basic reasons why no grades should be awarded for achievements outside the cognitive domain:

1. Students have an inviolable right to the privacy of their personalities and the integrity of their moral convictions. Additional dimensions of evaluation beyond the cognitive sphere might exert pressures on undergraduates to reveal more of themselves than they wish or to change their beliefs in the direction of greater orthodoxy.
2. The faculty may properly claim jurisdiction over intellectual standards and performance but it has no professional expertise which qualifies it to pass judgment on the values or personal characteristics of students.
3. Comprehensive evaluation would be discomfiting for the teacher, possibly injurious to the self-esteem of the student, and damaging to informal relationships outside the classroom.

As one commentator has recently indicated: "The great strength of conventional grading systems is that they are, for both the student and the teacher, an evaluation of performance in a specific course. They make no general observation about the student's character or about his inherent intellectual ability. A student who gets a high grade may consider it a fluke, a reflection of his true ability, or the result of exceptionally hard work. A poor grade may be regarded as perversity on the part of the professor, laziness, or bad luck. The student has no cause for feeling that the professor is making an assessment of his ultimate human worth or his value of the student as a 'person.' . . . The present grading system does separate the evaluation of class preference from any other personal or intellectual contact which a teacher may have with his students. This separation makes non-formal contacts easier rather than more difficult. Radical changes in the grading system which blur the distinction between work in a specific course and more general evaluations of the student's character or ability would create suspicion and distrust."[4]

Grades, then, are valuable or at least necessary adjuncts to learning but their use should be restricted to areas where they serve legitimate purposes. Here, as elsewhere, universities should not exceed the limits of their sovereignty.

The Grading System

An ideal grading system should permit the ordering of students on a scale which would be easily understood, include relatively few and mutually exclusive categories, allow for sensitive discriminations, have a reasonable range, and be demonstrably related to some independent criterion. As Figure 6.1 indicates, it is difficult for any scale to satisfy all of these desiderata.

LETTER GRADES

The current Princeton system of letter grades (A B C D F with the provision for appending pluses or minuses to the first three letters) has a number of important advantages.

1. This scheme, or a near variant, is used in by far the larger number of universities and colleges as well as secondary schools. It is thus thoroughly familiar to faculty and students and can be readily interpreted by admissions committees and personnel officers.
2. An eleven-point scale including pluses and minuses is not unwieldy yet it allows for sensitive distinctions between various levels of academic performance.
3. The present grading scheme has been in effect since 1969 after supplanting the 1-7 system to which the University had become accustomed after many years. We are still experiencing the inevitable dislocations entailed by the transition from old to new. There is much to be said, therefore, in favor of maintaining the present A-F system in order to sustain a period of stability during which more can be learned about the consequences of so recent a change.

HONORS MODELS

Each of the "honors" models depicted in Figure 6.1 acknowledges the symbolic importance and practical necessity of recognizing excellence but each blurs distinctions between gradations of merely satisfactory performance. They have the administrative advantage of simplicity and appeal to many because they reduce the preoccupation with trivial differences in level of performance. From another perspective it can be argued that the progression from letter grades to "triple," "double," and "single" honors is accompanied by a corresponding loss of information and motivational impetus.

The five-point triple honors scale—Summa, Magna, Laude, Satisfactory, Unsatisfactory—seems to us to be the most attractive alternative to conventional letter grades.

1. This system satisfies the criterion of parsimony; its categories are sufficiently precise for most internal purposes and it meets the needs of graduate and professional schools. Admissions decisions at the postgraduate level are based on the evaluation of the relative achievements of the most able students and seldom involve the necessity for making subtle differentiations among students who pass below the "B" level.
2. The term "satisfactory" is less explicit and has fewer invidious connotations than "pass" and most grades below the "B" level.
3. The triple honors system provides for only four distinctions among contiguous categories (e.g. Satisfactory or Unsatisfactory; Satisfactory or Laude; Laude or Magna, Magna or Summa) and should thus improve observer reliability, result in more uniform grading practices, and increase confidence in the legitimacy of the evaluation system.
4. The terms "summa cum laude," "magna cum laude," "cum laude," "satisfactory" and "unsatisfactory" are familiar to the academic community and represent no novel departures in concept or terminology. Their adoption for each course, independent work, examination, exercise, or project would have the additional merit of greatly simplifying the computation of honors for graduation.
5. The problems of converting from letter grades to the triple-honors scale would be straightforward and permit precise translations (e.g. A+ = summa cum laude; A = magna cum laude; A—, B+, B, cum laude) even for those students who completed some part of their undergraduate years under the earlier system.

The current system of letter grades should be retained through 1973-74 after which it will have been in effect for five years. During the following academic year 1974-75, the Committee on Examinations and Standing should conduct an inquiry to ascertain whether current procedures should be maintained, modified, or supplanted. This investigation should include systematic comparison of the merits of various evaluation scales among them the "triple-honors" scheme (Summa, Magna,

FIGURE 6.1

Selected Grading Scales

	Current System	Triple Honors	Double Honors	Single Honors	Pass-Fail
A+	Outstanding	Summa Cum Laude	High Honors	Honors	Pass
A	Excellent	Magna Cum Laude			
A−	Not Quite Excellent	Cum Laude	Honors	Satisfactory	
B+	Very Good				
B	Good				
B−	Not Quite Good	Satisfactory	Satisfactory		
C+	Very Satisfactory				
C	Satisfactory				
C−	Not Quite Satisfactory				
D	Minimum Acceptable				
P	Pass				
F	Fail	Unsatisfactory	Unsatisfactory	Unsatisfactory	Fail

Laude, Satisfactory, Unsatisfactory) which should receive special attention.

PASS-FAIL GRADING

The pass-fail system which exists on a limited basis at Princeton is preferred by some faculty and students as the basic grading system for all academic work. It is the least restrictive, and therefore the least revealing, of all the schemes of evaluation; a P is a residual grade which indicates only that the student did not fail, a fate which in any event befalls no more than about two percent of Princeton undergraduates. The adoption of pass-fail for all courses would be virtually tantamount to eliminating grades.

A degree which affirmed no more than that an alumnus passed X number of courses would, depending on the practices of other institutions, either unduly advance or jeopardize his competitive position vis à vis other college graduates. The goal of equal educational opportunity requires ideally that all contestants should compete under identical conditions, be judged by the same standards, and allowed sufficient time to develop and demonstrate their capacities. The arbitrary fact of socioeconomic class impinges on this ideal; there is a substantial association between family income, measured intelligence, high school grades, and admission to college, particularly to quality institutions.

Traditional grades have been one means through which individual merit can be recognized and errors in the uncertain art of academic prediction can be corrected. The conversion to an all pass-fail system in all colleges would freeze the status quo as of the freshman year. When all transcripts are the same there is no way of challenging the validity of initial admissions processes. Thus institutional prestige, rather than personal achievement, might be even more decisive than at present in fixing life chances.

Meanwhile, so long as most universities continue to employ traditional evaluation systems students who take all, or a substantial part of their work on a pass-fail basis will be penalized in the post-graduate admissions process. As many recent seniors can attest, given the ambiguous meaning of a "Pass," graduate and professional schools prefer to admit students with more comprehensible qualifications. Since career decisions are notoriously unstable even those students who have no initial plans for further education would be ill served by a grading system which gave insufficient testimony about their achievements.

A limited pass-fail option has, however, existed at Princeton since 1968 and has seemed desirable in principle to both faculty and students. Although the pass-fail option was originally conceived as a means of allowing students to explore what are for them difficult or unfamiliar areas subsequent pass-fail legislation has reflected so many additional purposes that the elements of the system are not fully compatible with one another. The Commission has, accordingly, considered ways to remedy deficiencies in current practice while still retaining the educational benefits of pass-fail grading.

It may be useful to summarize existing legislation by indicating the range of choices open to both students and faculty.

1. A student may ordinarily elect to take all optional additional courses beyond his normal course load, as well as two of his regular courses during his junior year on a pass-fail basis. The intent of this provision is to encourage students to enroll in offerings which they might otherwise avoid because of a reluctance to risk receiving a low letter-grade.
2. Students in certain departments (at the present time History, Architecture and Urban Planning, Politics, Sociology, Religion, Economics) have the option of taking all their upperclass work on a pass-fail basis. Here the intent is to allow the student to distribute his time rationally between departmental and elective courses without pressure to exert more effort in those offerings that are evaluated by letter grades.
3. A student who is enrolled in a course being offered by a professor on a pass-fail basis may request that he receive a regular grade.
4. Students may change the basis on which they are graded from pass-fail to letter grades or vice versa any time before mid-term examinations.

Under existing legislation, faculty members have the following choices with respect to pass-fail grading:

1. A faculty member may with the concurrence of his department and the approval of the Course of Study Committee offer his course on a "full" pass-fail basis. The rationale for this approach is that some courses by virtue of their content or pedagogy should not be evaluated in the standard way. Even in such courses, however, the professor is ordinarily expected to honor requests from students for a letter grade.
2. A member of the faculty may propose that his course be declared closed to students who wish to take it on a pass-fail basis and may do so with the concurrence of the department, and this restriction is noted in the "Courses Offered" booklet for that term.

The current legislation places no upper limit on the number of "full" pass-fail courses in which a student may enroll during his undergraduate career. If he chose to exercise his two junior year "student" options, registered conscientiously in "full" pass-fail courses, and enrolled in a department which permits a "pass-fail track," he could contrive to complete very nearly all of his work outside the letter-grade system.

One might suspect that a system that was so generously laden with options would lend itself to widespread abuse. Existing evidence is inconclusive.

The responses to several items on the Undergraduate Survey are instructive in indicating differences in student behavior in pass-fail and letter-grade courses.

1. About one-quarter of all students reported that they attend pass-fail courses less regularly than other offerings and this pattern is especially marked in the natural sciences and in engineering where 35% reported less frequent attendance. The variation among classes in the proportion of those who failed to attend regularly is negligible. (Tables 6.1 and 6.2)
2. About half of all students said that they expend less effort in pass-fail than other courses and this tendency is once again more marked in the natural sciences and in engineering. Here, too, the proportion varies only slightly from class to class. (Tables 6.3 and 6.4)
3. About two-thirds of all students in each division and class answered that when they are graded on a pass-fail basis rather than by letter grade, they are more likely to exercise individual discretion in deciding how best to distribute their time among the various topics in the syllabus. (Tables 6.5 and 6.6)

At first glance, these statistics seem to suggest that enrollment in pass-fail courses is merely a stratagem to redistribute or reduce the workload. The most dyspeptic inference that may be drawn is that deviations from conventional grading should be permitted only in optional additional courses and that even under these circumstances an audit rather than pass-fail should be inscribed in the record. This view of the pass-fail system would seem too severe:

1. The members of the graduating class of 1972 averaged about five pass-fail courses as part of the standard 30 or more offerings which comprise the total course load during their academic careers, a figure that was highly inflated by *ad hoc* arrangements occasioned by the Cambodian Spring of 1970. (Table 6.7)

The "actual" average is thus probably closer to four courses than to five. This figure does not seem excessively large in view of the fact that it includes optional additional courses, the enrollments of engineering students who routinely register for five courses, and of A.B. candidates who are with independent work also, in effect, taking five courses in their junior year. Moreover, it should be noted that the statistics of this class reflect an unusually intense period of educational ferment.

2. The Undergraduate Survey also reveals that the average graduate

of the class of 1972 enrolled in two of his five pass-fail courses in "difficult or unfamiliar areas" he "might otherwise have avoided" (Table 6.8) thus fulfilling the original intention of the pass-fail option. In our judgment it seems highly desirable to provide some measure of institutional support for students who might hesitate to transcend the limits of their self-defined limitations and thus fail to gain exposure to hazardous, but exciting, intellectual terrain.

3. There are circumstances when it is wholly appropriate for a student to devote more effort in those courses which truly engage him and somewhat less energy in those offerings to which he responds with more routine interest. To the extent that the pass-fail option permits some degree of flexibility in the distribution of intellectual energy it may encourage, rather than inhibit, serious intellectual work.

We conclude, therefore, that the pass-fail option can be a valuable component of a total scheme of evaluation and that it would be useful to consider how the structural features of the present system may be modified so that it might better serve educational purposes.

These issues may be approached by considering four interrelated questions. At whose option shall a student be enrolled in a pass-fail course? Should there be a limit on the number of courses a student may take? When in his academic career may he choose to exercise his pass-fail option? At what point in the semester must he indicate his final choice of the grading system by which he prefers to be evaluated?

AT WHOSE OPTION SHALL A STUDENT BE ENROLLED ON A PASS-FAIL BASIS?

There exist strong reasons for adopting a policy that, except in unusual cases, would permit students, rather than faculty, to decide which courses shall be taken on a pass-fail basis. Professors presumably offer "full" pass-fail courses for pedagogic reasons and not because of principled opposition to letter grading. They may, for example, believe that any sort of evaluation is inappropriate because of the intrinsic character of course content or the sensitivity of the materials. These considerations, however valid, seem less plausible when anyone, let alone a significant percentage of the class is evaluated in the standard fashion.

In 1971-72, 1135 or nearly one-third of 3415 course selections in "full" pass-fail courses represented students who elected letter grades and in more than one-fifth of the 96 courses offered on this basis the proportion who chose the "graded" option actually exceeded the proportion who chose to be graded according to the scheme preferred by their professors (see Table 6.9). Moreover, it is reasonable to suppose that an undetermined number of students chose to enroll in such offerings not so much for their unique pedagogical features or distinctive content but out of a desire to expand the range of their pass-fail opportunities. If such persons were removed from the totals the limited raison d'être of most pass-fail courses would be even more apparent.

There are, to be sure, rare instances as in the case of the Creative Writing Program when it can be argued that letter grades are inappropriate for any student under any circumstances. The practice of excluding from courses students who seek letter grades should, however, be strictly circumscribed. No undergraduate should be denied access to a course for which he is otherwise eligible except for the most compelling reasons. This principle should also apply to students who exercise their pass-fail option in letter-grade courses. A collective decision to encourage wider intellectual exploration should not be subject to unilateral veto by members of the faculty who do not approve of this policy.

HOW MANY PASS-FAIL COURSES? WHEN IN HIS UNDERGRADUATE CAREER MAY A STUDENT EXERCISE HIS OPTION?

Students, then, rather than faculty should ordinarily determine which of their courses shall be taken on a pass-fail basis. The number of such offerings should not exceed a reasonable limit, perhaps six plus whatever optional additional courses are taken in a given term plus work in some creative arts courses that are given only on a pass-fail basis. The number six is, of course, arbitrary. It has been selected because it represents about twenty percent of a student's course work, a proportion that offers him some degree of flexibility without compromise to his career or to academic standards.

The student could exercise his options according to legislation which limited him to X number of pass-fail courses per semester or year, or he might be permitted to exercise his option as he saw fit. The second alternative seems preferable. Students differ in their interests and work styles and they may benefit from exposure to pass-fail courses at various stages of their undergraduate careers. Some freshmen will prefer to explore fields that are not represented in secondary school curricula, while others may wish to postpone their introduction to previously unexplored areas until they have a more accurate conception of their own strengths and weaknesses and some greater grasp of the University's intellectual resources. Six pass-fail courses seem adequate, without being excessive, and if students are both responsible and properly advised, fewer alumni will have occasion to deplore their failure to use the college years to test the limits of their interests and capacities.

THE SPECIAL CASE OF THE TRACK SYSTEM

The "track system" in use in some departments combines the principles of student and faculty choice and presents special problems. The confusion engendered by this pattern may be illustrated by the fact that students following a pass-fail track have been denied access to courses even in the same department by instructors who have the option of excluding pass-fail students from their courses. Nor is the meaning of a "departmental" course necessarily stable. Students who take "non-departmental" pass-fail courses may not discover until later that such offerings have meanwhile been reclassified as "departmentals." By this time it is usually too late to retrieve the grade and it is in any event unwise to allow so much time to elapse between performance and evaluation. These and other administrative difficulties tend to confuse the original purposes of the track system.

The complexities and ambiguities should not obscure the fact that the track system has apparently operated with some success in one or two departments. The needs of some students are best met through this mechanism and although the number is not great (now only thirty throughout the entire College), administrative convenience should not take precedence over important educational benefits. It does not seem possible to draft omnibus legislation capable of creating order in the present system but it does seem feasible for the Office of the Dean of the College and the Committee on Examinations and Standing, acting on the advice of departments, to decide on a case-by-case basis which upperclassmen should be authorized to follow a single track. This policy would conform to procedures now in effect with respect to admission to the University Scholar, Independent Concentration, and other programs which are responsive to individual differences, administratively complex, and involve more than a single department. Under these circumstances, the responsibility for authorizing and monitoring deviations from general practice should be entrusted to those who are in the best position to assess the consequences of their decisions for the student and the College.

WHEN DURING THE SEMESTER MUST A STUDENT SELECT HIS GRADING OPTION?

The practice which most threatens the integrity of the evaluation system is the prudential calculation which induces some students to transfer from pass-fail to letter grades or vice versa as they discover how well they are performing in a particular course. Thus, for example, "full" pass-fail offerings might now more accurately be described as A-B-P courses. From fall 1969 to spring 1972 the proportion of Passes in such courses declined from approximately 85 percent to 60 percent; meanwhile, the proportion of B's quadrupled from about 2.5 to 10 percent and the proportion of A's rose from four percent to over 15 percent. The proportion of students awarded C's, D's, and F's averaged less than two percent throughout the entire period. (Figure 6.2) This pattern results from variable departmental policies governing the stage in the semester when students are required to declare an irrevocable preference for a particular form of grading. In some departments the decision may be deferred until the mid-term tests or even beyond the final examination. This situation is susceptible to a fairly simple remedy. All students should indicate at registration which courses they wish to take pass-fail, a declaration that would remain in effect unless revoked after some reasonable time, perhaps three weeks after the beginning of the semester.

On the basis of this review of the pass-fail system the Commission is prepared to submit the following recommendations:

a. *Every student may elect to be evaluated pass-fail in as many as six regular courses and in all optional additional courses beyond the normal course load.*

b. *The pass-fail option shall apply in all courses listed in the Undergraduate Announcement and may be distributed by a student through his academic career in such manner as he sees fit.*

c. *Full pass-fail courses shall be eliminated except in selected creative arts courses designated by action of the full faculty. Students may enroll in such offerings without reducing the total number of courses they may otherwise take on a pass-fail basis.*

d. *Premission to enroll in all upperclass courses on a pass-fail or letter grade "track" shall be granted on an individual basis at the discretion of the Dean of the College and the Committee on Examinations and Standing upon recommendation of the department in which the student is concentrating.*

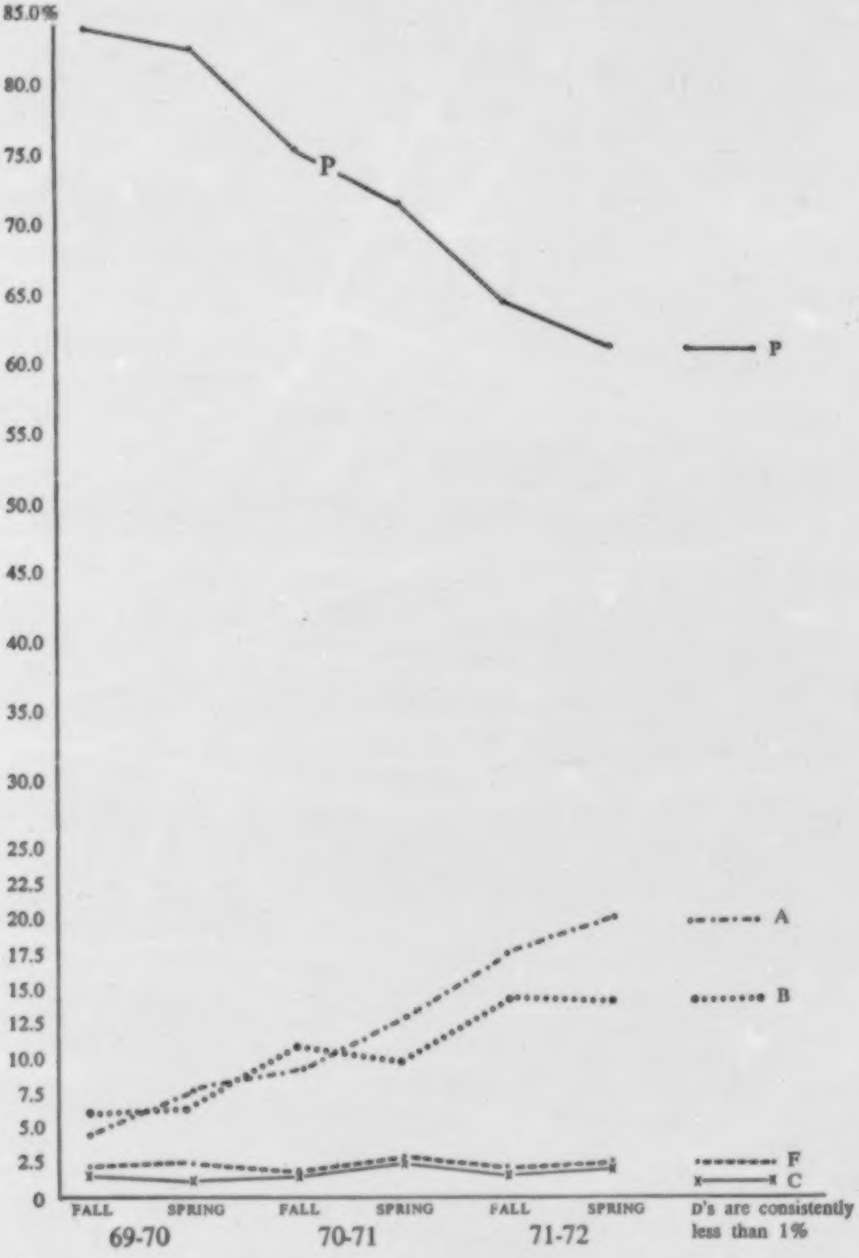
e. *A student's declaration of intent to be graded on a pass-fail basis or to enroll in a course as an auditor should be irrevocable after the first three weeks after the beginning of classes.*

THE RETROACTIVE AUDIT

Several institutions have recently incorporated into their evaluation systems what might be described as a "retroactive audit" by eliminating "fail" or "unsatisfactory" from the grading scale. The assumption underlying such deletion is that the transcript should record only demonstrated competencies and that a student who has "failed" physics, for example, knows no less about quantum mechanics than a classmate who did not enroll in the course. A variation of this policy requires the institution, at the request of the student, to remove from the record a specified number of his lowest grades. This practice presumably compensates for idiosyncratic behavior on the part of both faculty and students (although it is not clear why excellent as well as poor grades should not be

FIGURE 6.2

Grade Distribution for Full Pass-Fail Courses By Term and By Year
1969-70, 1970-71, and 1971-72



excised) so that the surviving grades are presumably more representative of the customary level of performance.

The advantages of these unorthodox departures are those which are inherent in any risk-free universe. A student who is relieved from any threat of a failing grade is immunized from anxiety and damage to self-esteem. These are positive outcomes in themselves and would seem to have the additional virtue, even more than pass-fail grading, of eliminating the grading system as a significant element in course selection. However, since in 1971-72, D's comprised three percent and F's two percent of all grades, if there is widespread fear of failure such anxiety can be hardly ascribed to experience.

On balance we are unable to find any very persuasive reasons to abandon the principle that the transcript should reflect what actually occurred during the undergraduate years. Relevant academic information including specifically "failures" should be permitted to stand and if some grades are atypical, these should not be suppressed at the source but discounted by those who interpret the record.

WHAT EVALUATION DEVICES SHOULD BE USED TO ASSIGN GRADES?

The Commission has not discussed the elements that should be considered in assigning a grade or the weights to be assigned to each. The relative importance imputed to examinations, papers, exercises, problem sets, class participation, etc., does and probably should vary considerably among departments and individual faculty. However, since in recent years the final essay or project has been increasingly substituted for the final examination, we made some effort to assess student response to this mode of evaluation.

Tables 6.10-6.13 permit us to infer that Princeton undergraduates believe that as compared to such alternatives as "oral," "objective" or "in-class" examinations the essay examination "written at home" is the more useful as a learning aid and more valid as a learning device. The preference for the "take-home" paper over the "in-class" examination as an accurate measure of performance is, however, slight and the data rather suggest that the traditional method of examination still has an honored place among a diversified array of evaluative procedures.

SHALL PERFORMANCE CRITERIA BE SPECIFIED IN ADVANCE?

"Performance grading" is a recent form of evaluation in which the professor lists in advance a series of competencies that all students must master in order to earn credit for the course. Every obstacle must be satisfactorily surmounted but no letter grades are assigned to students at the conclusion of the course. A variation of this plan is known as contract grading. According to this scheme, professor and student negotiate a detailed agreement specifying the quantity and quality of the work required to earn particular grades. The terms of the contract assure each student that he will receive the grade he merits and he may adjust his efforts to his level of aspiration. Colleges that have experimented with this method do not report whether there exists grievance machinery and how much time is consumed by preliminary bargaining and subsequent litigation.

The advantages of these plans is that they introduce some measure of predictability into the evaluation process. Aside from all else, performance and contract grading share a common failing: they seem better adapted to competencies which can be translated into specific items of concrete information and tangible skills. The student who knows which European dictators were known as Der Führer, Il Duce, or El Caudillo might for this show of erudition be well on his way to a C+ but how is it possible to guarantee an A for an ambitious essay of the "compare and contrast" or "review and critically evaluate" type without introducing qualitative distinctions? The faculty should, of course, insist that students command fundamental materials, know what is expected on the examination, and understand the basis of the grading system but these responsibilities can be met by methods that are less burdensome and complex than performance and contract grading.

SOME CHARACTERISTICS AND PROBLEMS OF THE GRADE DISTRIBUTION

Ideally, grade distributions should be perceived as just by students, reflect "fair" practices by the faculty, and convey an intelligible meaning to post-graduate schools and others. These goals require patterns of grading that discriminate among students at various levels of excellence, express a plausible relationship between the quality of the student body and the collective record of performance, depict reasonably similar profiles within and across departments, and remain comparatively stable over time—at least in the short run.

In one sense it is quite remarkable that grade distributions exhibit any discernible pattern. The Princeton system is based on the traditional laissez-faire principle of freedom and responsibility for the individual course instructor. With few exceptions he alone decides how grades are computed, what standards are applied, which distribution of grades are appropriate, and whether the average of assigned grades is reasonable. This principle is so powerful and so pervasive that professorial autonomy may account for most of the variations in grades and grading that are likely to occur during any academic year at Princeton.

An additional area of potentially idiosyncratic variation has its source in the type of grading standard applied, relative or absolute. The first emphasizes the differential achievement of undergraduates as measured against each other; the second is based on some fixed predetermined conception of what students should achieve. Fidelity to these standards is reflected in contrasting ideas about awarding grades in large and small classes, in upper and lower class courses, marking on a curve, and establishing appropriate reference groups. Perhaps most faculty members assign grades in accordance with some undefined combination of these two modes of thought. Under these circumstances grade distributions tend to have an equivocal meaning.[5]

Despite these uncertainties, grade distributions exhibit perceptible patterns and some generalizations about the institution as a whole seem clearly warranted:

1. The proportion of students in each entering cohort who receive high grades ordinarily increases in linear progression from the freshman to the senior year. For reasons that are not wholly clear, the grades of graduating seniors in the class of 1972 declined somewhat in their last term at Princeton. (Table 6.14)
2. The proportion of students who receive either A or B rose from 50 percent between the Fall term of 1969 to 60 percent in the Spring term of 1972, or an increase of twenty percent. The modal grade is now B and there are almost twice as many A's than C's in the distribution. About three percent of all grades are D's and the two percent who receive F are, one gathers, for the most part guilty of what was once known as "flagrant neglect." (Table 6.15) The distribution is even more skewed if pass-fail grades are removed from the calculations. When letter grades alone are taken as the base, the proportion of grades in the upper two categories rises to more than three-fourths of the total. The pass-fail option thus conceals how truly bountiful is the total grading system. Indeed, one-third of all letter grades awarded are A. (Table 6.16)
3. There are marked variations in grading practices among departments and in courses within the same department. In some instructional units, virtually all students receive A, B, or P while in others C's, D's or F's exceed forty percent of total grades. (Table 6.17)

These data are intelligible only in the context of national trends. According to a comprehensive study completed in 1971 grade point averages in over 90 percent of 435 colleges and universities included in the survey have been rising consistently since the mid 1960's.[6] There are no appreciable differences by type of undergraduate institution so that commuter and non-commuter colleges, public and private, high tuition and low tuition, and highly selective and less selective institutions all exhibited the same inflationary tendencies. At Harvard, for example, about half of all students graduated with honors in 1961; a decade later the proportion had increased to two-thirds. It would be an error, therefore, to interpret the skewed grade distributions at Princeton as a purely isolated phenomenon; an apparent surfeit of A's and B's may not be read either as evidence of the matchless talents of Princeton students or as proof positive of the decline of local standards.

The fact remains, however, that if the current elevation of grade levels should become a runaway inflation it will be extraordinarily difficult for graduate schools and others to make distinctions among Princeton alumni. Unless a transcript accurately reflects performance and a high grade has an intelligible meaning, the evaluation system will be unfair to students and of very limited use to educational institutions.

Several means are available to achieve a more balanced grade distribution. The College could, for example, encourage each department to bring its grades into rough alignment with a predetermined standard that might, or might not, be modified so that it varied by discipline or division, or reflected the quality of the student body. It is conceivable also that a change in the grading system, for example, to one of the honors' schemes (e.g. Summa, Magna, Laude, Satisfactory, Unsatisfactory) might yield a less boisterous grade distribution.

It may be of significance that for the most recent graduating class the proportion of students who earned honors in all three categories (46 percent) precisely equalled the combined percentage who received ratings of Academic One and Two at admissions. This finding is rather striking even after allowance is made for the small number of students who were enrolled in the "pass" track. (Table 6.18) Departmental faculties doubtless now exercise more care in awarding departmental honors than in assigning grades in individual courses; nevertheless, a grading scale which employed the term "honors" might well introduce an additional element of austerity into the evaluation process.

The entire issue of grade distributions is very complex, not amenable to easy solutions, and merits further investigation and action. Accordingly, the Commission offers the following recommendations:

1. *The Dean of the College should appoint an ad hoc committee or charge an existing committee with the responsibility for submitting recommendations as to whether it is desirable and feasible to adopt guidelines establishing a stable and expected grade distribution.*

2. *The Dean of the College should continue to maintain a record of the grade distribution of the University as a whole and each department and program and report such information on a regular basis to the faculty for its guidance and action.*

3. *The Dean of the College should initiate discussions with other universities and colleges for the purpose of exploring the feasibility of joint action to increase the comparability of grading scales, practices, and distributions.*

4. *The Committee on Examinations and Standing should in the course of its review of various grading practices in 1974-75 take into account the possible impact of grading terminology on grading distributions.*

Diagnosis as an Element in Evaluation

The most serious complaint against grading is that while a single summary measure may be useful to internal and external constituencies, it has very imprecise diagnostic value for the student. An undergraduate who receives a B will usually know in a general way that he has performed creditably and he will probably have some intimation of why his professor regarded his work as better than average and less than superb. But since a grade measures some unknown combination of content mastery, critical ability, creativity, attitude, attendance and numerous other components, a summary symbol conveys comparatively little helpful information about specific aspects of a student's intellectual development.

The recognition of those limitations of conventional grades prompted the Commission to consider the merits of more detailed modes of evaluation as represented by written statements and "multi-dimensional reports." Either may supplement letter grades or be used in their stead. Written evaluations are now in use in some liberal arts colleges and consist simply of several paragraphs indicating the professor's impressions of the student's achievements together with suggestions on how he might advance his mastery of the field and enhance his intellectual competencies. The advantage of this procedure is that it gives the student a more comprehensive perspective of his strengths and deficiencies. Its disadvantages are several:

1. Written comprehensive evaluations are redundant if detailed comments have previously been appended to examinations, papers, and exercises.

2. The type of detailed knowledge about each student which would be required for useful written evaluations is difficult to come by when a professor meets a substantial number of students.

3. The process of writing evaluations would consume an inordinate amount of faculty time which might better be spent in discussing the same range of issues with students under conditions where each could learn more about the other.

An alternate approach which retains some of the advantages of written statements with fewer of their burdensome properties would substitute a standardized diagnostic form for prose. A form currently in use by the Department of Philosophy does, in fact, make some effort to evaluate a variety of non-cognitive dimensions. Some such brief form has the following to commend it:

1. A short list can be completed comparatively easily and would add only marginally to the burden of submitting term grades.
2. A properly constructed instrument would direct the attention of both faculty and students to a predetermined list of educational goals.
3. Systematic evaluation of the same items over a period of time would afford the student an opportunity to assess the reliability of faculty judgments, to identify his own intellectual resources, and to observe his pattern of change as he proceeds through his undergraduate career.

Supplemental evaluations, if adopted for general use, should be conceived as an extension of the teaching process, another opportunity to guide and instruct, rather than as an addition to the formal grading system. It would be unfortunate if diagnostic devices, which were designed to promote self-knowledge, led instead to increased self-consciousness in the transactions of students and faculty. There is no need to further complicate the grading system or add to the burden of administrative bookkeeping by inserting between thirty and forty additional documents into a student's official record.

Accordingly, the Commission offers the following recommendations:

1. The Committee on Examinations and Standing shall be charged with the following responsibilities:
   a. To explore the desirability and feasibility of developing a standardized instrument for recording a more detailed evaluation of academic performance than can be conveyed through conventional grades;
   b. To determine whether it is fruitful to conduct an investigation in several courses—large and small, underclass and upperclass—in each academic division for the purpose of testing the effectiveness of the evaluation form and of eliciting the reactions of students and faculty to supplemental diagnosis as an educational device.
   c. To determine if any supplemental evaluations should be included as part of the student's official files in the Registrar's Office, departments, or elsewhere in the University.
   d. To report findings and any recommendations to the Committee on the Course of Study and the Academics Committee of the Undergraduate Assembly.

DEPARTMENT OF PHILOSOPHY

Fall Term 1972

NAME: CLASS: COURSE: Phil.

Departmental Student ☐

Non-Departmental Student ☐

Was Course Graded? Yes ☐ No ☐

Grade:

	Outstanding	*Above Ave.*	*Ave.*	*Below Ave.*
General philosophical ability:				
Knowledge of subject:				
Interest in course:				
Effort:				
Class participation:				
Written work:				
Interest in pursuing additional topics:				

General Comments:

External Comments:

Instructor's Name:

Date:

The recently issued "An Information Statement for the Guidance of New Faculty at Princeton University" indicates that "teaching takes many forms and occurs at various levels—underclass, upperclass, graduate, and postdoctoral. It takes place in lecture rooms, classrooms, preceptorials, seminars, laboratories, workshops, colloquia, colleges, halls, and reading courses. Furthermore, teaching at Princeton involves supervising independent work such as senior and Ph.D. theses, advising students, guiding research assistants, and conversing with students and colleagues about their work, as well as curriculum planning, design of courses, and other activities in connection with teaching beyond direct contact with students."[7]

There is no set of activities that is more crucial to the health of the university and none more difficult to define and measure. Obiter dicta on the characteristics of good teaching abound, as do efforts to reduce this embarrassment of riches to a finite quantity for purposes of more precise definition and measurement. At the University of Washington, for example, students evaluate the faculty by responding to ten items derived from a factor analysis of the forty-one admired traits that are the most frequently mentioned in the literature: "Interprets abstract ideas and theories clearly; gets me interested in this subject; has increased my skills in thinking; has helped broaden my interests; stresses important material; makes good use of examples and illustrations; has motivated me to do my best work; inspires class confidence in his knowledge of subject; has given me new viewpoints or appreciations; and is clear and understandable in his explanations."[8]

This list of desirable teaching traits is as good as any but even leaving aside that what a teacher *is* may be as significant as what he says or does, all such compilations are suspect. In a very real sense, there are no great teachers and there is no superb teaching except insofar as virtuoso performances are demonstrably connected to changes in the lives of students. This occurs when at a given stage of his development an undergraduate is prepared to receive what a professor is equipped to give. These intersections cannot be planned in any precise way so that even under the best of circumstances a particular teacher will be unusually "effective" only for some students for mysterious reasons at an unpredictable point in time. Exposure to a distinguished faculty will, however, increase the probability that a student will experience once or twice that rare glimpse of the cosmos which will sustain him all his remaining days.

The truth is that neither the institution, nor the faculty, nor students can know the precise nature of the impact of teachers on undergraduates. The freshman arrives with his baggage of personality, culture and intellect, grows four years older, experiences much, also attends class, and much later, reflecting in tranquility, is hard put to know how and why he became what he has become. But the truth is also that most of us feel that we recognize a great teacher when we encounter him and, as in all other things, the best can be distinguished from the worst and both of these from the journeyman.

The most systematic and elaborate mechanism through which we gather information about teaching effectiveness is the evaluation which every student is asked to complete at the end of each course. Course evaluations have proved useful in a variety of ways:

1. They assist students in the process of selecting courses.
2. They communicate information to the instructor which is probably not obtainable with the same degree of candor by any other means.
3. They help identify relative areas of strengths and weaknesses in undergraduate teaching in various departments, programs and classes.
4. They furnish relevant data for decisions on faculty salaries, advancements and tenure.

There now exists a substantial body of research which indicates that student ratings tend to be as reliable as the better aptitude tests and are, moreover, not much influenced by differential educational and demographic characteristics. Neither sex, year in college, academic achievement, nor departmental major have any significant effect on the recorded response of students to faculty. The evidence is considerably more scanty and reassuring about the validity of evaluation scales or the uses to which they have been put. There exists only very modest support for the hypotheses that students learn more from professors to whom they assign high ratings or that instructors having been admonished by their students subsequently mend the error of their ways.[9]

The Princeton version of the student evaluation form has recently been revised so that it now includes many fewer items than the original edition and responses may be coded on a five point scale. The summary findings for 1971-72 which are presented in Table 6.19 under headings reading "Structural Forms," "Conduct of the Classroom," "Student Assignments," and "Faculty Response to Student Performance" are a source of mixed gratification and concern. Some of these data have been discussed in earlier parts of this report but they bear brief repetition in the present context.

1. The rating "excellent" was awarded by as many as 25 percent of the students, and a combined rating of "excellent" and "good" was awarded by as many as two-thirds of the students, to only half of all selected items. The modal rating for nearly all items is "good" which

usually includes an appreciably greater proportion of the response than is represented in either of the contiguous categories.

2. Lectures and seminars are the most highly-rated and laboratories have the lowest ratings of all the structural forms with classes and precepts occupying a middle position. This finding should not be read as an endorsement of particular modes of teaching but rather as an estimate of how well the potentialities of each is now being realized at Princeton.

3. The "overall quality of teaching" in all courses was rated "excellent" by about thirty percent of all students, and "good" by an additional forty percent, so that seven out of ten believed that their professors qualified for inclusion in the top two categories. About one-fifth of all undergraduates judged their teachers as no better than "fair" but fewer than ten percent found their instruction generally "poor" or "unacceptable."

More undergraduates apparently admire their professors for their "overall" competence as teachers and their ability to "integrate" the various parts of courses than for their command of any of the specific pedagogical skills that might, in the aggregate, contribute to so favorable an estimate. The faculty earned comparatively high ratings for their clear exposition of course materials and for enhancing the student's capacity to think critically about subject-matter and somewhat less approbation for their ability to increase interest in their fields, stimulate curiosity, or pose challenging questions. Only slightly more than a bare majority commended the ability of laboratory instructors to provide "the right amount of structure and guidance" and their preceptor's skill in "encouraging broad student participation."

4. More than two-thirds of the respondents rated the general quality of readings and the overall value of papers, reports, and problem sets as "excellent" or "good." Fewer than half assigned similar ratings to the "overall effectiveness of quizzes or examinations as educational devices." This estimate must be taken with considerable seriousness since generally high student grade distributions weakens the suspicion that their low regard for the educational value of examinations is prompted by pique.

5. There are marked contrasts in the ratings of faculty response to student work in different situations and settings. The item which elicited the single highest proportion of "excellent" ratings (44 percent) was the "preceptor's responsiveness to students' concerns and questions." On the other hand, an almost equal percentage rated as "fair" or worse "the helpfulness of the instructor's comments in response to your written work." Greater attention to this aspect of the teacher's pedagogical repertoire might obviate both the demand and the need for providing students with "supplemental diagnostic evaluations."

There is some reason to believe that students' assessments of their academic experiences are more favorable when they do not think of them in connection with specific courses. For example, a question on the Undergraduate Survey which sought reactions from each class about the "quality of teaching" throughout their undergraduate careers yielded proportions of 22 percent "excellent," 61 percent "good" for an impressive total of 83 percent. (Tables 6.20 and 6.21) It seems quite probable that more detailed queries in the Survey about a wider range of pedagogical concerns would have produced correspondingly more favorable reactions than those in the course evaluations.

These statistical data are consistent with impressions derived from extensive discussions with students: within a general context of satisfaction with the quality of instruction at Princeton, a fair number are discontented with various aspects of their academic experiences. It is difficult to know to what standards undergraduates refer in arriving at their judgments, if their expectations are realistic or whimsical, and their mood lenient or harsh. It is certain that only they know whether the instructor "raised challenging questions" or whether they "felt a sense of challenge, insight and discovery" and their reports on such matters are data of the most revealing kind. At the same time, in the nature of the case, such information is necessarily limited to a particular perspective. At best, students may identify problems but they, acting alone, are incapable of suggesting the remedies that might solve them.

It is, therefore, a matter of some concern that student evaluations are the only university-wide source of systematic knowledge about the impact of teaching and that there is no structured provision through which faculty colleagues could help each other improve their teaching skills. We know of no faculty which is more scrupulous about its responsibilities to undergraduates or where professors are so dedicated to the ideal of the teacher-scholar. However, the corporative concern for teaching tends to be programmatic and, as such, is largely preoccupied with maintaining the integrity of the curriculum rather than with sharing information about methods which help sudents learn or in discovering how well professors teach.

There are a number of available means, among them observations associated with team teaching, class visits, self-evaluation and technological devices which may be useful sources of knowledge about teaching effectiveness. Team teaching, which is often thought of as an "innovation," has long been an integral part of the precept system. Senior colleagues, junior faculty and assistants in instruction who are jointly responsible for teaching a course can observe and learn from each other how to make instruction more effective. We have the impression, however, that these opportunities are not always fully exploited. Too often meetings among instructors are perfunctory and devoted to administrative details rather than to discussions about how knowledge might be better organized and transmitted. Properly utilized such sessions might serve as a continuing informal seminar on the teacher's art.

In many, if not most, departments team teaching provides the only opportunity for senior faculty to observe their junior colleagues and then only as lecturers rather than as preceptors or laboratory instructors. A department must, therefore, sometimes rely too heavily on student evaluations and hearsay in evaluating teaching as part of the process of recommending increases in salary, renewal of appointments, and tenure. Occasional visits at a time mutually agreeable to the observer and the teacher might well prove rewarding to each. This procedure is offensive to many on the grounds that observation is an intrusion on the special relationship between a teacher and his class, creates tension and resentment in the instructor, discourages innovation and imposes the definitions of one generation on the practices of another. These hazards are, however, essentially those which arise in connection with any activity that is subject to collegial evaluation. Teaching does not differ in this respect from research which is, of course, routinely submitted for public scrutiny and judgment. The same traditions of respect for academic freedom and individual style should protect every member of the faculty in his role of teacher as well as scholar but it would be odd if institutions dedicated to the pursuit of knowledge preferred ignorance to information in deciding how well they were performing their central functions.

Class visits, preferably by the faculty member primarily responsible for the course, would seem particularly important in the case of assistants in instruction. The observer should, of course, be especially sensitive to the characteristic insecurities of inexperienced instructors and conduct such visits and subsequent conversations in a manner that encourages collegial interchange on matters of common professional concern. Teachers, as well as scholars, require guidance and support in the early stages of their careers. At the same time, a decent respect for the welfare of undergraduates imposes the obligation on departments to observe directly whether assistants in instruction are as yet prepared to teach. There is no profession, save ours, where "clinical" experience is unaccompanied by supervision and we should no longer remain the sole exception.

Supervision is, of course, no substitute for disciplined efforts by younger, or for that matter senior teachers, to work at their craft. The use of audio-visual devices can assist each in determining how well they have succeeded. Videotape makes it possible for an instructor to become his own observer and to see himself as others see him. The University already owns the necessary equipment which is portable, employs reusable tape and can be operated inexpensively as part of student aid. The Office of Teacher Preparation and Placement which has used videotape in its own program reports that after a preliminary period of self-consciousness neither faculty nor students alter their ways because of the intrusion of the camera. The film can be run in its entirety or interrupted for "replays" and the instructor who views it in privacy or, at his invitation, in the company of colleagues, should gain new insights into the sources of his successes and failures.

Self-evaluations, no less than other forms of assessment, are valid sources of knowledge about teaching effectiveness. Any member of the faculty, but particularly one who is receiving consideration for tenure, should feel free to convey to the department any specially meritorious aspects of his teaching which he believes have escaped the attention of his senior colleagues. In the absence of any secure knowledge about the actual impact of teaching on students during their college years and later, we will be best able to make inferences about teaching effectiveness when we have had recourse to the widest possible array of perspectives.

In view of the considerations cited in previous sections, the Commission offers the following recommendation:

The Dean of the Faculty in consultation with the Provost, the Dean of the College, and chairmen of departments and programs shall recommend to the faculty appropriate procedures for evaluating and improving teaching at all ranks through exchange of class visits and other means. Particular effort should be extended in assisting junior faculty in the early stages of their teaching careers and Assistants in Instruction to develop the full range of their professional competencies—as lecturers, discussion leaders, preceptors, and laboratory instructors.

Any procedures for faculty evaluation of colleagues should be adopted with scrupulous regard for the protection of academic freedom, respect for diversity of teaching styles, and concern for the distinctive relationship between a teacher and his students.

THE NEED FOR BETTER INFORMATION ABOUT STUDENTS, FACULTY AND THE UNIVERSITY

Universities, like individuals, must learn to tolerate ambiguity. They commit their resources and invest their energies in developing programs and plans which are designed to produce outcomes that are, by their nature, difficult to measure. Many achievements claimed for education are, thus, based on faith rather than evidence. As we proceed from the best empirical studies to insightful theoretical discourse, to commencement oratory, to folk wisdom, the claims for education become progressively more extravagant. The ignorance of the actual effects of college on students is an open invitation to speculation and fanciful observation.

The larger uncertainties about Princeton's impact on people and society probably cannot be wholly overcome but they can be reduced by careful research into its own activities. In the most general sense, we wish to know:

1. the measurable outcomes of the Princeton experience beyond those which could have been predicted from our knowledge of the personal and social characteristics of the students and the features that are common to all universities;
2. the extent to which such effects vary in response to variations in the learning environment;
3. the extensiveness, duration and stability of these effects over time.

Princeton is now in the process of developing a computerized data bank and it should soon be possible to determine how selected demographic, social, educational and attitudinal characteristics govern the only measures of educational outcome which we now systematically collect—grades, departmental honors, prizes and awards, evaluations completed at the end of each course and after the second and fourth year of study, and participation in extra-curricular activities. The standards which define "success" or "failure" for a particular student might then be established by prescriptive norms, the achievements of other students, or, most significantly, by the student's own development. This last would be particularly welcome since both the research literature and local data have yielded very little of value about developmental processes as students move through the system.

We need no studies to establish that some information is absorbed with each additional course but the University has conducted no systematic investigation of more subtle cognitive effects, such as the ability to manipulate ideas and evaluate alternatives. The two- and four-year evaluations have elicited a very low rate of return and since few items in these instruments are comparable, they are not amenable to developmental analysis. We know even less about the progressive modification of non-cognitive outcomes during an undergraduate's years at the University including changes in attitudes, values, and personality.

We propose, therefore, that *the Dean of the College shall appoint an ad hoc committee or charge an existing committee with the responsibility for submitting recommendations on information that should be included in the Data Bank and analyzed on a continuing and systematic basis. These items should pertain not only to the cognitive domain but also to the development of personality and values and to activities beyond the classroom.*

The University is, of course, already heavily engaged in extensive efforts to learn more about its own activities. The Provost, the several Deans, the Director of Admissions, the Registrar, the Planning and Development offices, and the supportive services all conduct studies, as these become relevant for their work. The resultant output is impressive in its quality and range. Indeed, one problem associated with such abundance is that no one in the University has a very precise notion of all that exists and how the separate investigations are related to each other. In the absence of overall coordination, available data may be generated anew, persons conducting similar investigations may fail to pool their efforts, and it is difficult to build up a cumulative body of knowledge because of lack of comparability in research designs, samples, or survey items. Moreover, there is now no mechanism for identifying areas that need study nor any office which is specifically responsible for encouraging further inquiry into the affairs of the University.

Existing gaps in knowledge might be considerably narrowed if they were identified and brought to the attention of departments as possible topics for senior theses. In recent years, students have produced valuable research bearing on admissions policy, scheduling, the athletic program, student life, and off-campus education. In addition to these applied and more narrowly focused inquiries, several theses have been devoted to such broader issues as the history of student movements. Many more undergraduates might elect to work in the area of higher education if they were aware of such opportunities and were given access to non-confidential data.

Accordingly, the Commission recommends that *the Provost shall maintain general oversight of institutional research, conduct a census of existing studies, identify areas that require further exploration, and take steps to encourage undergraduates, where appropriate and feasible, to participate in such investigations.*

SUMMARY OF RECOMMENDATIONS

1. The College shall continue to award the degrees of Bachelor of Arts and Bachelor of Science in Engineering and to evaluate academic performance by means of grades.

a. Grades should normally be awarded in each course, for independent work, and the Senior Comprehensive Examination. A record of all term grades shall be entered on the transcript.

b. The current system of letter grades should be retained through 1973-74, after which it will have been in effect for five years. During the following academic year, 1974-75, the Committee on Examinations and Standing should conduct an inquiry to ascertain whether current procedures should be maintained, modified, or supplanted. This investigation should include systematic comparison of the merits of various evaluation scales among them the "triple-honors" scheme (Summa, Magna, Laude, Satisfactory, Unsatisfactory) which should receive special attention.

2. The limited pass-fail option should be retained but the Committee on the Course of Study should give serious consideration to the following proposals for revising the current system:

a. Every student may elect to be evaluated pass-fail in as many as six regular courses and in all optional additional courses beyond the normal course load.

b. The pass-fail option shall apply in all courses listed in the Undergraduate Announcement and may be distributed by a student through his academic career in such manner as he sees fit.

c. Full pass-fail courses shall be eliminated except in selected creative arts courses designated by action of the full faculty. Students may enroll in such offerings without reducing the total number of courses they may otherwise take on a pass-fail basis.

d. Permission to enroll in all upperclass courses on a pass-fail or letter-grade "track" shall be granted on an individual basis at the discretion of the Dean of the College and the Committee on Examinations and Standing upon recommendation of the department in which the student is concentrating.

e. A student's declaration of intent to be graded on a pass-fail basis or to enroll in a course as an auditor should be irrevocable after the first three weeks following the beginning of classes.

3. The College should take appropriate action to deal with the problematic aspects of prevailing grade distributions:

a. The Dean of the College should appoint an *ad hoc* committee or charge an existing committee with the responsibility for submitting recommendations as to whether it is desirable and feasible to adopt guidelines establishing a stable and expected grade distribution.

b. The Dean of the College should continue to maintain a record of the grade distribution of the University as a whole and each department and program and report such information on a regular basis to the faculty for its guidance and action.

c. The Dean of the College should initiate discussions with other universities and colleges for the purpose of exploring the feasibility of joint action to increase the comparability of grading scales, practices, and distributions.

d. The Committee on Examinations and Standing should in the course of its review of various grading practices in 1974-75 take into account the possible impact of grading terminology on grading distributions.

4. The Committee on Examinations and Standing shall be charged with the following responsibilities:

a. To explore the desirability and feasibility of developing a standardized instrument for recording a more detailed evaluation of academic performance than can be conveyed through conventional grades;

b. To determine whether it is fruitful to conduct an investigation in several courses—large and small, underclass and upperclass—in each academic division for the purpose of testing the effectiveness of the evaluation form and of eliciting the reactions of students and faculty to supplemental diagnosis as an educational device.

c. To determine if any supplemental evaluations should be included as part of the students' official files in the Registrar's Office, departments or elsewhere in the University.

d. To report findings and recommendations to the Committee on the Course of Study and the Academics Committee of the Undergraduate Assembly.

5. The Dean of the Faculty in consultation with the Provost, the Dean of the College, and chairmen of departments and programs shall recommend to the faculty appropriate procedures for evaluating and improving teaching at all ranks through exchange of class visits and other means. Particular effort should be extended in assisting junior faculty in the early stages of their teaching careers and Assistants in Instruction to develop the full range of their professional competencies—as lecturers, discussion leaders, preceptors, and laboratory instructors.

Any procedures for faculty evaluation of colleagues should be adopted with scrupulous regard for the protection of academic freedom, respect for diversity of teaching styles and concern for the distinctive relationship between a teacher and his students.

6. The University shall take the following actions to improve the organization and quality of institutional research:

a. The Provost shall maintain general oversight of institutional research, conduct a census of existing studies, identify areas that require further exploration, and take steps to encourage undergraduates, where appropriate and feasible, to participate in such investigations.

b. The Dean of the College shall appoint an *ad hoc* committee or charge an existing committee with the responsibility for submitting recommendations on information that should be included in the Data Bank and analyzed on a continuing and systematic basis. These items should pertain not only to the cognitive domain but also to the development of personality and values and to activities beyond the classroom.

APPENDIX 1

PROJECTED ENROLLMENT

In order to facilitate the discussion of the size and composition of the student body the following two tables, with various enrollment projections, have been constructed. It should be emphasized at the outset that the projections are only approximations—one cannot predict precisely in these matters.

These tables are based on a number of assumptions. First, since we are concerned to calculate the effects of a policy that does not fix quotas for men and women, the tables assume a policy of equal access. The second assumption is that the numbers of men and women applying will grow at an annual rate of 1% and 5% respectively. Based on Princeton's own experience, and that of other similar institutions, it seems reasonable to expect the women's pool to grow faster than the men's. Women now make up less than 30% of the applicant pool; over the long run, if Princeton's experience is comparable to that of other coeducational universities, we would expect the men's and women's pools to grow at approximately the same rate. This means that the (approximate) 60-40 split would probably maintain itself after 1977, and that the composition of the student body would be relatively stable.

The other assumptions used in these projections are related to policy decisions. The first of these assumptions concerns the University's commitment to engineering. We have assumed that the number of BSE candidates will be held constant. Within this group the sex of the applicant will not be considered in the admissions decision. Engineering is presently elected predominantly by men although the College has been quite successful in its efforts to attract female engineering students. To the extent that this process continues, we will be adding to the number of women in the College without lessening our commitment to engineering. Both tables assume that we will be able to bring the number of BSE women per class up to 35 from the present 13 by 1977. In view of the markedly growing interest shown by women in the School of Engineering, the estimate of 35 may well be conservative. If the present number of engineering spaces were divided equally between men and women, the number of women in each class would increase by 70-80. This would mean a rise of 6%-7% in the number of women. It should be noted that BSE candidates are shown separately in the tables not because of the special place they occupy in the admissions process, but because of the extent to which they account for the male/female imbalance in the entering class.

The final policy assumption underlying our projections is that Princeton will continue its participation in intercollegiate athletics on roughly the same scale that it now participates. What this has meant for the admissions policy is that each year a number of students are enrolled partly because of the contribution they can make to athletics, and who might otherwise not have been admitted. Although such students comprise only a fraction of those who participate in intercollegiate athletics, they still constitue a special group which varies in size from year to year, depending on a number of factors (the need in particular sports, the other qualifications of those admitted, etc.). For example, if in a given year all the students with unusual athletic ability are found to have been admitted on academic or other grounds alone, then the special group falls to zero. Since whatever the number, this group will be composed overwhelmingly of men, some effect on the sex ratio results from the University's present commitment to intercollegiate athletics. Our best estimate is that 70-80 places are presently going to men partly because of athletic considerations. In other words, athletic considerations are apt to account for men having 35-40 more places than women (or 2.8%-3.6% more of an entering class) than would otherwise be the case.

Table A shows the projections for a freshman class of 1100 (our present class size) admitted under a policy of equal access. It appears that such a policy would have little effect on the male/female distribution if it were applied in 1973-74. However, as the pool of women applicants continued to grow relative to that of the men, the number of men would fall. By 1977 we would expect it to have fallen by approximately 45.

If the male and female applicant pools were to grow at the *same* rate (rather than 5% for women, 1% for men), the number of men would fall only very slightly over the years. If, on the other hand, the men's pool were not to grow at all, while the women's pool grew at an annual rate of 10%, then the number of men would fall to something like 700 in 1977. Since both of these sets of assumptions (0% differential between men and women, or a 10% differential) represent extreme cases, we can be quite sure that under a policy of equal access, the actual male enrollment in a class of 1100 would be somewhere in the [700-790] range five years from now. This means, by a parallel argument, that the entering class would have between 310 and 400 women.

Table B shows the projections for a class of 1200, with assumptions identical to those underlying Table A. We have assumed that the number of men in this added group would be roughly proportional to the number of men in the total applicant pool. Table B shows, as a result, an expected equilibrium (i.e. 1977) enrollment of 805 men and 395 women. Again, we can be quite sure that the numbers of men and women would fall in the [760-850] and [350-440] ranges respectively.

Table A

Enrollment Projections - Freshman Class of 1100

	1972-73*	1973-74	1974-75	1975-76	1976-77	1977-78
Total AB Candidates						
Men	626	636	629	621	615	608
Women	287	292	299	307	313	320
Total	913	928	928	928	928	928
(% Men)	(68.6)	(68.5)	(67.8)	(66.9)	(66.3)	(65.5)
BSE Candidates						
Men	159	154	149	144	139	137
Women	13	18	23	28	33	35
Total	172	172	172	172	172	172
Total						
Men	785	790	778	765	754	745
Women	300	310	322	335	346	355
Total	1085	1100	1100	1100	1100	1100
(% Men)	(72.4)	(71.8)	(70.7)	(69.5)	(68.5)	(67.7)

* Actual enrollment figures

Table B

Class of 1200

	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
AB Projections For a Class of 1100						
Men	626	636	629	621	615	608
Women	287	292	299	307	313	320
Total	913	928	928	928	928	928
Additional 100 Per Class*						
Men	---	68	66	64	62	60
Women	---	32	34	36	38	40
Total	---	100	100	100	100	100
Total AB Candidates						
Men	626	704	695	685	677	668
Women	287	324	333	343	351	360
Total	913	1028	1028	1028	1028	1028
(% Men)	(68.6)	(68.5)	(67.6)	(66.6)	(65.9)	(65.0)
BSE Candidates						
Men	159	154	149	144	139	137
Women	13	18	23	28	33	35
Total *	172	172	172	172	172	172
Total						
Men	785	858	844	829	816	805
Women	300	342	356	371	384	395
Total	1085	1200	1200	1200	1200	1200
(% Men)	(72.4)	(71.5)	(70.3)	(69.1)	(68.0)	(67.1)

* We have assumed 68% of these spaces go to men in 1973. This percentage drops 2% each year and levels off at 60% in 1977. This implies the number of spaces going to men is roughly proportional to the number of men in the applicant pool. It is also assumed that none of these spaces would go to engineers or to students from the subgroups.

APPENDIX 2

ANALYSIS OF COSTS AND INCOME OF 400 ADDITIONAL STUDENTS

This Appendix presents estimates of operating and capital costs for several areas of the University in an attempt to predict the net financial results of increasing the undergraduate student body to 4800, an increase of 400 students beyond the 4400 currently planned for September 1974. Eight general areas are examined: (1) faculty; (2) departmental administration; (3) general and academic administration; (4) student aid; (5) space and other capital costs; (6) dormitory and food services; (7) library; and (8) tuition and other income. The financial results of this addition of 400 students for each of these areas and the University as a whole are presented in Table A. As that table indicates, the net operating results for such an increase would fall between a surplus of $6,600 and a deficit of $180,500, and the capital costs should be between $8.5 million and $9.3

Table A

Cost and Income Estimates of 400 Additional Students
($000)

	Operating Cost and Income	Capital
Faculty	402.3	
Department Administration	86.8 - 151.2	
General and Academic Administration	159.5	
Student Aid	313.4	
Dormitory and Food Services (Net)	-0-	-7500 - 8500
Space	3.8 - 15.0	388.8 - 777.6
Library	67.6 - 180.1	152.7
Tuition Income	1,120	
Other Income	10	
Net Result (deficit)	6.6 - (180.5)	(8041.5) - (9430.3)

million. Ranges for these estimates have been presented because of the uncertainty involved in making these sorts of predictions. All cost figures have been made in 1971-72 dollars. Should costs rise faster than income, the economic implications would become less favorable; and conversely, if income rises faster than costs, the economics would improve.

The mix of students assumed in the calculations was 800 men and 400 women in each class. This has been viewed as a steady-state estimate representing a move from a prior steady-state of 4400 with a mix of 800 men and 300 women in each class. Thus, all 400 students to be added would, on this assumption, be women. Should the number of women be greater than 400 per class, faculty costs would increase slightly. Should the number of men rise, faculty costs would fall to a small degree. Student aid costs would also be affected slightly by a change in the mix, with men requiring more aid. Other costs would not be affected to any appreciable degree by a change in the male-female distribution. It should also be noted that the operating costs and income are roughly linear for additions smaller than 400. In other words, income and cost estimates for 200 more students, or a total of 4600 undergraduates, would be about half those for 400 more. A more detailed discussion of each of the eight budget areas is presented below.

I. *Faculty*

Faculty salaries and benefits are the largest single cost of increasing the student body by 400. The projection of faculty costs was a two-staged analysis. Since undergraduate enrollment is not yet at the currently planned steady-state of 4400, it was necessary to estimate first the costs for faculty needed for a student body of that size. The additional faculty needed to move from 4400 to 4800 undergraduates was then estimated.

Faculty are required for two types of instructional activity: classroom teaching and supervision of independent work. Classroom teaching is presiding over lectures, classes, precepts, seminars, laboratories, and so forth. Supervision involves primarily overseeing the independent work juniors and seniors do in conjunction with their major. Faculty effort for both teaching and supervision is measured in faculty course contact hours (FCC hours). For classroom teaching, an FCC hour is one faculty member teaching one or more students one hour each week of the term. For supervision, an FCC hour is determined by a formula relating the amount of effort required to supervise juniors and seniors in their work. One FCC hour is given for supervising four seniors, or slightly more than 5 juniors, or some combination thereof. Separate estimates of the number of additional FCC hours that would be required to teach the additional 400 students were made for classroom teaching and for supervision. Details of the method of arriving at these estimates appear in Appendix 2.1.

Adding together the FCC hours for teaching and supervision, the calculations showed that for a student body of 4800 with approximately 800 men and 400 women in each class, a total of 238 more FCC hours would be needed than for a student body of 4400. This figure was then used to estimate the number of full-time equivalent faculty which would be needed, and from that the resulting cost.

Since departmental requirements differ with regard to teaching loads, existing faculty, and so forth, the Office of the Dean of the Faculty aided in the computation of the number of FTE faculty and the accompanying salaries and benefits. Upper and lower bounds for faculty costs were set because actual costs could fluctuate due to changes in course selection distribution, teaching loads and other factors. The lower bound, or minimum cost, used the figure of 238 FCC hours and assumed that one full-time equivalent faculty member teaches 10 hours per term. Thus, about 24 new FTE faculty members would have to be added for the 400 additional students.

The upper bound was computed using the ratio of total course selections to full-time equivalent faculty charged to the teaching budget over the five-year period 1970-71 (actual) through 1974-75 (projected) (Table B). Then, assuming an undergraduate enrollment of 4800 and just under eight course selections per student per year, and assuming a

Table B

UNIVERSITY TEACHING PROGRAM

	1970-71	1971-72	1972-73	1973-74	1974-75
Course Enrollments					
Undergraduate [1]	28,833	31,523	32,962	33,986	34,778
Graduate	4,919	4,757	4,815	4,815	4,815
TOTAL	33,752	36,280	37,777	38,801	39,593
Teaching Statistics					
Enrollment/Teaching Staff	50	55	57	56	58

[1] Assumes 8 course enrollments per student.

continuation of the ratio of selections to full-time faculty equivalents at 58, the upper bound estimate for new faculty was 46.

With these limits in mind, the Office of the Dean of the Faculty looked at the existing teaching loads and faculty resources in the different departments along with the requirements for new FCC hours for teaching and advising and decided that approximately 36 full-time equivalent faculty would be required to increase the undergraduate enrollment from 4400 to 4800. This number was chosen because it allowed the University to keep the ratio of course selections to full-time equivalents under 60 and thus arbitrarily close to the standard prevailing when the student body reaches 4400. There were other reasons, too, for estimating that the University should add 50% more than the 24 FTE faculty that were computed as the minimum needed to provide the 238 additional FCC hours projected. First, in looking at the types of FCC hours needed, the Dean of the Faculty's office was wary of placing too great a burden of advising upon faculty. Also, it was felt that additional FTE faculty could not be calculated in terms of undergraduate teaching alone since faculty members above the instructor level would be likely to do some graduate teaching and advising as well. Not to take this into consideration would be to assume that the new faculty would have to do significantly more undergraduate teaching of a non-lecture type, and significantly less graduate teaching than the faculty currently do.

After deciding on the addition of 36 FTE's, it was necessary to distribute them among the instructional ranks. In determining the rank, the Dean of the Faculty was guided in large part by the type of instructional hours to be added. The following considerations were influential: (1) Whenever it seemed appropriate, it was assumed that the additional FTE's would come from the lowest teaching ranks; (2) supervisory hours required faculty above the rank of Assistant in Instruction; (3) enough senior faculty must be added to avoid a large shift in the balance of tenured to non-tenured faculty; and (4) after reviewing the availability of additional AI's, it was concluded that the University is currently employing close to the maximum available, given the present and projected size of the Graduate School. Therefore, a significant number of AI's cannot be used to meet the need for FTE's. However, it is felt that the availability of Instructors will increase over the years to come. The 36 FTE's were then distributed as follows:

AI's	8
Instructors and Lecturers	10
Assistant Professors	12
Tenured Professors	6
	36

The cost of these faculty members was computed in terms of direct salaries in 1971-72 (including benefits) in $000:

8 AI's @ 9.3	= 74.4
10 Instructors & Lecturers @ 10.7	= 107.0
12 Assistant Professors @ 14.4	= 172.8
6 Tenured Professors @ 23.0	= 138.0
	492.2

In estimating the distribution of additional faculty among departments, careful consideration was given to the type of FCC hours to be added, to balance of the department, (especially in those departments with a large number of additional hours) and to the staffing decisions which have already been made since 1971-72. Table C shows the ratio of majors per FTE faculty by division for a student body of 4400 and 4800.

As Appendix 2.1 indicates, a detailed hypothetical departmental analysis was carried out to estimate the number of FTE faculty required for 400 more students. However, these projections were based on 1971-72 student interests and by the time 4800 undergraduates were actually enrolled, these may have changed substantially. Therefore, it was felt that the most reasonable presentation of changes in faculty staffing would

Table C

Majors/FTE Faculty,* by Academic Division
For Undergraduate Enrollments of 4400 and 4800**

	4,400	4,800
Humanities	3.6	3.8
Social Sciences	6.7	6.8
Natural Sciences	2.5	2.7

* Full time equivalent faculty over the rank of Assistant in Instruction.

** Data for Engineering have not been included because they will not be affected by the addition of 400 students.

be to show the estimates of new faculty required by academic division, where interests are more stable over time. Table D shows for each division the additional FCC hours for courses and supervision and the additional faculty by rank.

Table D

New FCC Hours and FTE Faculty Required
for 400 Additional Undergraduates,
by Academic Division

	FCC Hours	AI's	Instructors and Lecturers	Assistant Professors	Tenured Faculty	Total FTE
Humanities	124.3	5	5.5	7	3	20.5
Social Sciences	43.8	.5	3.5	1	1	6
Natural Sciences	65.8	2.5	1	7	2	9.5
Engineering	1.8	0	0	0	0	0
TOTAL		8	10	12	6	36

II. *Departmental Administration*

Departmental administration costs are the expenses academic departments must incur to maintain their operations. These costs include that portion of the chairman's salary devoted to non-teaching departmental work, secretaries' salaries, pay for lab technicians in the laboratory sciences, and so forth. Upper and lower bound estimates were made for departmental administration for the 36 new FTE faculty with data from the University's computation of indirect costs for 1971-72.

First, for the lower bound, it was assumed that the addition of a few faculty would not require more administrative time from faculty. It was felt that these costs were fixed, regardless of the size of the department. Administrative costs for this lower bound were taken as the ratio of teaching costs to departmental administration (without faculty salaries), as computed for 1971-72.

For the upper bound, it was assumed that all departmental administration costs, including faculty salaries, are constant per faculty member. The additional funds needed for administration were computed by extrapolating the total costs from last year. These upper and lower estimates are shown in Table E.

Table E

Departmental Administration Required
for the Addition of 36 FTE Faculty,
by Division
($000)

	Lower Bound	Upper Bound
Humanities	45.9	87.7
Social Sciences	13.5	22.5
Natural Sciences	27.4	41.0
Engineering	——	——
TOTAL	86.8	151.2

III. *General and Academic Administration*

General Administration expenses include the cost of operating offices of the President, Financial Vice-President, Provost, Controller, Vice-President for Development, and so forth. Academic Administration expenses include the cost of operating the offices of the Dean of the Faculty, Dean of the College, Dean of Student Affairs, the Registrar, and all other departments directly involved with the academic life of the University. To estimate the costs which would be involved in increasing the student body from 4400 to 4800, a questionnaire was sent out in 1971-72 to the heads of all the concerned offices. In that questionnaire, these people were asked to estimate the impact on their operations of increasing enrollments to 4400 from last year's 3950, and from 4400 to 4800.

After the department head's estimates were submitted, they were reviewed by the Office of the Provost and adjusted in some instances. The estimate for General Administration is $98,600 and for Academic Administration, $60,900.

IV. *Student Aid*

In computing the student aid costs for an additional 400 women, it was assumed that the financial aid profile of the new students would be the same as existed for the women enrolled in 1971-72. This profile includes a proportion of economically disadvantaged women. Since all of the calculations have been done in 1971-72 dollars, the average aid figure for that year was used in the projection.

In 1971-72 38% of the women received aid and the average scholarship provided was $2,048. For 400 new women, the total cost to the University would be $313,344.

The above figure does not include the new loan funds which would be required. If the University were required to set aside some additional monies from its unrestricted endowment to use for loans for these new students, it could incur a new cost since the interest earned on the loans might be less than the total average return on endowment in the investment pool. However, for this analysis, this potential cost has been ignored both because government funds may be available for the loans and because any actual difference in income to the University would probably not be significant.

V. *Dormitory and Food Services*

With the addition of Spelman Hall, which will be completed in 1973-74, the University will have dormitory capacity for about 4400 undergraduates. Increasing the student body to 4800 would require the construction of additional housing and dining space. For the purposes of this analysis it has been assumed that a residential college with dining facilities for these students would be constructed at a cost of $7.5-8.5 million. It has also been assumed that the annual operating costs of this college would be met by student charges for this facility and thus would not be a drain on the University's resources. However, income from room and board fees might not cover any capital charges which the University would incur should it need to borrow funds for the construction. Since it is not known at this time whether funds from gifts would be raised for the college, or whether the University will borrow the money, this potential cost for capital has not been included.

The other possible cost for Dormitory and Food Services would be for a new or expanded student center. However, if a residential college with dining and social facilities were built for 400 new students, those students would presumably add little to the demand for a new student center and such a facility could not be justified from an economic standpoint.

VI. *Space and Other Capital Charges*

There are two broad categories of space in the University: academic and non-academic. Academic space is faculty offices and instructional and classroom space, and non-academic space is administrative offices, athletic facilities, and so forth.

Looking first at academic space, at the present time it does not appear that sufficient office space could be provided for the 36 additional FTE faculty without adding to the total volume of office space by construction or acquisition. It is possible that improved utilization of existing space and changes in policies concerning the allocation of space could generate the needed offices, but this cannot be known without a more detailed study. However, current planning shows that some of those changes may have to be made to accommodate the faculty required for 4400 undergraduates.

For the purpose of this analysis, estimates of two alternative solutions to the academic space problem were made. One estimate assumes that new space would be constructed for each of the 36 new faculty at a capital cost of $777,600 and annual operating costs of $15,000. The other estimate assumes the renovation of existing space at a capital cost of $388,800 and annual operating costs of $4000. The cost of a third possible alternative—acquiring and renovating space already in existence but not yet belonging to the University—would fall somewhere between these two estimates.

With regard to instructional space (classrooms, lecture halls, seminar rooms, laboratories, and so forth), a simulation of scheduling was performed for an undergraduate student body of 4200. This simulation showed that there was more than adequate instructional space under existing scheduling policies concerning time periods and departmental building preferences, with the exception of laboratory space in the life sciences. Expansion to 4400 undergraduates should pose no problems.

The availability of instructional space for 4800 undergraduates is difficult to predict without running another scheduling simulation. It is recommended that such a simulation be run in the Spring of 1973 when data for the fall of 1972 are available. It is expected, however, that there will not be any serious problems aside from the Life Sciences laboratory requirements. The simulation, though, will show the possible tradeoffs between instructional space and academic offices.

Turning to non-academic space, it is not thought that any new space will have to be constructed for university administration or athletics. While some administrative offices may have to be moved from their present locations, and other space modified, no net additions should be required. Should extensive renovation be required, some capital and increased operating costs would be incurred. At the time of this writing, no estimates for these potential costs could be made. However, it is not expected that these costs would be substantial. The space requirements for the library and dormitory and food services are discussed in other sections.

VII. *Library*

Increased operating and capital expenditures for the library would be required for an additional 400 students. Although it is difficult to estimate these expenditures (the library's plans for an undergraduate student body of 4400 are not yet definite, and will depend largely upon those areas in which new faculty are added), some rough estimates can be made and are presented in Table F.

Table F

Increased Expenses for the University Library
Due to the Addition of 400 Undergraduates
($000)

	Operating	Capital
New Titles	37.5 - 150	-0-
Reserve Collection	4.5	52.7
Open Stack Collection	13.8	-0-
Staff	10.8	100
Space	1.0	
Total	67.6 - 180.1	152.7

For operating costs, new titles would have to be added if faculty were hired with interests in areas in which the University's collections were weak. These expenditures are greatest for senior faculty, but would occur for anyone working in an area new for the University. If the library has little or no coverage in a particular field, it could cost about $50,000 to establish a collection plus thousands more for further development. This money would not be spent all at once, but at the rate of $10,000 per year. Thus, if 10 of the proposed new faculty for the added students had interests in areas in which the library's collection was weak, annual expenditures of $100,000 or more for several years could be required. On top of this would be $50,000 for preparations costs (i.e. $.50 for every $1.00 of acquisitions). If, on the other hand, none of the new faculty were interested in areas new for the library, such costs would not occur. While the projection of faculty costs does not assume that any new courses or programs would be offered, it is unlikely that none of the new faculty would be interested in fields not adequately covered by the library. Because of this uncertainty, it is estimated that between $37,500 and $150,000 would be spent annually on purchase and preparation of new titles because of the faculty hired to teach 400 additional undergraduates.

While expenditures for new titles depend largely upon which new faculty are hired, costs for reserve books and added copies for the open stack collections would be required merely to meet the needs of the added students. It is estimated that 400 more students would cause annual expenditures of $4500 for the purchase and preparation of new reserve books each year plus $13,800 for the purchase and preparation of duplicates for the open stack collections. Also, about $10,800 would have to be spent on salaries for new staff to serve the larger student body.

For capital costs, a one-time expense of $52,700 for the purchase and preparation of additional copies of existing reserve duplicates would have to be made. This collection of reserve books is the basic collection upon which faculty draw each year. Furthermore, some additional space would have to be made available for carrels for seniors preparing theses and for studying by all students. One way to solve the need for carrels would be to proceed with the second phase of the expansion of Firestone Library toward Nassau Street. The cost of this second phase will be between $3.0 and $3.5 million. The capital cost has not been attributed to this increase in the student body because it is already planned. In 1970, it was assumed that this second phase would proceed sometime around 1978-1980; but it might have to be undertaken somewhat sooner were 400 students to be added. The needed study space could probably be provided through the renovation which is already planned for Firestone. Finally, some modification would have to be made to the Marquand

Library for the Department of Art and Archaeology and to some areas of the School of Architecture and Urban Planning. That library is already crowded, and some expansion may be required for the additional majors in Art and Archaeology which will result from having 4400 students enrolled. A rough estimate of the cost of expanding and modifying the Marquand Library for 400 more students is $100,000 for capital costs and $1000 for annual operating costs. This figure assumes that the library can be expanded without the construction of new space, but rather by renovating existing space in McCormick Hall.

VIII. *Tuition and Other Income*

In 1971-72, tuition charges were $2800 per student. For an additional 400 students the University would receive $1,120,000. Other charges, fines, and so forth, would amount to roughly $10,000. Thus, total income would be about $1,130,000.

No estimate has been made for increased endowment income or Annual Giving contributions which could result from the possible increase in the student body because of the great uncertainty in prediction. It has been assumed, however, that no reduction in either type of income would occur.

APPENDIX 2.1

METHOD OF ANALYSIS OF ESTIMATING FCC HOURS REQUIRED FOR 400 ADDITIONAL STUDENTS

Separate calculations were made to estimate additional FCC hours required to teach 400 more students for classroom teaching and for the supervision of independent work. To estimate the additional FCC hours required for classroom teaching for a student body of 4800 the percentage of the new course selections made by the added students in each class was projected for every department on the basis of student course selections in 1971-72. (Data for the current year were not used because they were not yet available.) These projections were made only for the fall semester because that term has the greatest number of FCC hours. It was assumed that if there were sufficient faculty to meet the fall semester's teaching needs, there would be enough for the spring term. (This assumption implies that the distribution of selections among departments and the total number of selections are not markedly different in the spring. In fact, there are generally fewer course selections in the spring having roughly the same distribution.)

To arrive at the number of new selections for each department these percentages were then multiplied by the total number of new course selections the added students would make in the fall term. The departmental selections were then distributed to specific courses in the same proportion in which the total course selections were distributed in 1971-72. The computation assumes that the new students would distribute themselves among the courses within a department in the same way as do existing students. This assumption was made for two reasons. First, in the base year of 1971-72, there were not many women students and some courses had no women enrolled. However, had more women been in attendance these courses would undoubtedly have attracted some. Second, while there are clear differences between the tastes of men and women with regard to the choice of departments, it was felt the departmental requirements and other factors outweigh these differences when it comes to the selection of specific courses within departments.

After students were apportioned to specific courses, it was possible to compute the number of additional FCC hours required to teach those courses. The 1971-72 weighted average size of sections for each type of instruction other than lecture was computed for every department. (For lectures it was assumed that new students could be added up to the capacity of the lecture hall, a phenomenon which did not occur with this increment of students.) Then, the "additional capacity" of each of these types of instruction was computed for each course in the following manner: If the average section size within a course was below the weighted average, it was assumed that students could be added into sections up to the departmental average. If the course's section size was larger than the average, it was assumed that it would stay the same. (This assumption had the tendency to push the average up slightly. However, since this was done separately for each type of instructional activity within each department—class, precept, lab, and so forth—none was increased substantially.)

Knowing the capacity of existing courses and the number of new students enrolling, the number of new sections required was then estimated by adding sections to courses whenever excess capacity was not sufficient to meet the new demand. When less than a full section was needed, it was assumed that a section would be added if more than half a section were called for. For small additions, the extra students were placed in existing sections, thereby slightly increasing their size.

The estimate of new FCC hours was made by multiplying the number of new sections for each course by the number of FCC hours for each section. For those courses which required non-classroom faculty time for such duties as grading and lab preparation, FCC hours were added in the same ratio per enrolled student as existed before the increment.

The next step in computing faculty costs was to estimate the FCC hours required for supervising majors in each department. First, the percentage of juniors and seniors majoring in each department was computed by sex on the basis of data for 1971-72. For senior women, the percentage was computed by assuming that the ratio of the percentage of senior men to junior men equaled the ratio of the percentage of senior women to junior women. This was done because of the relatively small number of senior women enrolled in 1971-72 and because all of them were transfer students. In some cases where the resulting percentages appeared too high, they were arbitrarily reduced and redistributed among the other departments. These percentages were then multiplied by the number of additional junior and senior women needed for an enrollment of 4800 to estimate the number of new majors for each academic department.

The formula

$$\text{FCC hours} = .25(.75 \text{ juniors} + \text{seniors})$$

was then used to compute the new FCC hours per term which would be needed for supervision.

The same formula was used to compute FCC hours for supervising in all departments. While, in fact, time requirements for supervision may differ dramatically by discipline, it was felt that such differences should be taken into account in translating departmental FCC hour requirements into full-time faculty teaching equivalents rather than in the formula.

APPENDIX 3

274
/275

A. UNDERGRADUATE SURVEY, CLASSES OF 1972, 1973, 1974 and 1975*

SENIORS

A. Do you now have any plans to pursue further education after you graduate from Princeton?

○ Yes ○ No ○ Undecided

IF YES: What type of further schooling do you plan to pursue:

○ graduate work in arts and sciences, field:____________________

○ professional schools, field:__________

○ other:________________________

B. If you had been required to begin work in a major at the very beginning of your freshman year, to the best of your memory, what major would you have selected?

Major:__________ ○ Don't remember

Can you recall how confident you would have been that you were making the right decision?

○ very confident ○ fairly confident

○ not at all confident ○ don't remember

C. If you had been required to choose a major at the very end of your freshman year, to the best of your memory, what major would you have selected?

Major:____________ ○ Don't remember

Can you recall how confident you would have been that you were making the right decision?

○ very confident ○ fairly confident
○ not confident at all ○ don't remember

D. What major did you select during the second semester of your sophmore year?

Major:____________

Did you subsequently change your major?

○ Yes ○ No

IF YES: Please specify your final choice:

____

E. During your time at Princeton, have you ever wanted to take a course (or courses) in a subject or area that is not included in the undergraduate curriculun (answer as many as apply)?

○ I wanted to take a course or two in (please specify):____________

○ I wanted to take a substantial number of courses in (please specify):_____
____

○ I wanted to major in (please specify):
____

○ The present curriculum had all the courses I was interested in taking.

F. During the summer of 1971 (last summer) did you spend a month or more doing any of the following (please check all that apply):

○ working for pay (please specify type of work):____________________

○ travelling: domestic ○ foreign ○

○ doing volunteer community work (please specify type of work):

○ other:________________________

G. During the summer following your senior year do you plan to spend a month or more doing any of the following (check all that apply):

○ working for pay (please specify type of work if known):__________________

○ travelling: domestic foreign

○ doing volunteer community work (please specify type of work if known)_______
____

○ other:________________________

○ no plans at present time

H. Please list the courses you have taken during your senior year. Please include courses in which you are currently enrolled.

1st Semester	2nd Semester
____________	________________
____________	________________
____________	________________
____________	________________

I. Speaking generally, how would you rate the overall quality of your academic experiences at Princeton during your senior year (course work, intellectual growth, development of new interests, etc.)?

excellent good fair poor

J. Speaking generally, how would you rate the overall quality of your non-academic experiences during your senior year (social life, extracurricular activities, community participation, etc.)?

excellent good fair poor

K. What do you think is the maximum number of courses meeting three hours a week that you could have taken during each semester of your senior year and still have had sufficient time for each course?

First Semester______number of courses
Second Semester______number of courses

1. On the whole, how would rate the quality of teaching in the courses you have taken at Princeton?

○ excellent ○ good ○ fair ○ poor

2. On an average day, how many hours would you say you devote to the following kinds of activities?

____academic work (going to class, reading, writing papers, etc.)
____working for pay
____bull sessions with fellow students
____sleeping
____extracurricular activities

3. Do you believe that you could have handled the academic aspects of the Princeton experience if you had skipped your senior year of secondary school and come to Princeton a year earlier?

○ Yes ○ No ○ Undecided

4. Do you believe that you would have been ready for the non-academic aspects of the Princeton experience if you had skipped the senior of secondary school and come to Princeton a year earlier?

○ Yes ○ No ○ Undecided

5. Did you enter Princeton in the fall semester immediately following your graduation from secondary school?

○ Yes ○ No--Please specify the number of years elasped before you entered Princeton:__________years.

IF YES: Do you think you would have benefitted from taking some time off before entering the University?

○ Yes ○ No ○ Undecided

IF NO: In retrospect, do you think it was a wise idea to take time off?

○ Yes ○ No ○ Undecided

6. Have you ever interrupted your studies and taken a leave from Princeton?

○ Yes ○ No

IF YES: For which of the following reasons did you leave the University (please check all that apply):

○ required to leave by the university
○ health
○ academic difficulties
○ personal problems
○ financial problems
○ tired of college
○ to attend school elsewhere
○ to travel
○ to pursue interesting experiences
○ to engage in community work
○ other (please specify)
____

How many semesters did you complete before you took a leave:_____Semesters.

IF YOU ANSWERED YES TO QUESTION 6: How many semesters were you away from campus before returning:______Semesters

In retrospect, for how many semesters would you have wanted to be away before returning:_______Semesters

IF YOU ANSWERED NO TO QUESTION 6: If you had been given complete freedom of choice would you have taken an extended period away from the campus at some point during your undergraduate career?

○ YES ○ NO ○ UNDECIDED

When do you think would have been the best time for you to take a leave?

○ After completing_____Semesters
○ Undecided

In retrospect, for about how many semesters do you think you would have wanted to be away from campus?

_____Semesters ○ Undecided

7. If you had complete freedom of choice would you prefer to continue your education next year without interruption or would you prefer to take a leave from campus before resuming your studies? (Seniors-Skip to next question)

○ Continue next year without interuption
○ Take a leave

8. Instruction at Princeton is ordinarily offered in large lectures, small discussion groups, and classes of intermediate size which combine lecture and discussion.

What would you say should be the maximum size for a lecture?
___number of students ○ no opinion
○ size does not matter

9. What would you say should be the maximum size for a discussion section?
___number of students ○ no opinion
○ size does not matter

10. What would you say should be the maximum size for a class which combines lecture and discussion?
__number of students ○ no opinion
○ size does not matter

11. Approximately how many courses have you taken on a pass-fail basis since entering the University?

Number of courses:_____

12. Of these courses, how many did you choose as pass-fail in order to take interesting but difficult or unfamiliar courses in which you otherwise would not have enrolled.

Number of courses:________

13. In approximately how many of your pass-fail courses were there no tests or examinations given in class?
○ None
○ About a quarter
○ About half
○ About three quarters
○ All or almost all

14. Speaking generally, has your attendance in pass-fail courses been more regular, less regular, or about the same as in courses evaluated by letter grade?

○ more regular ○ less regular
○ about the same

15. Speaking generally, did you invest more, less, or about the same time and effort in reading assignments, papers, projects and examinations in pass-failcourses as you did in courses evaluated by letter grades?

○ more time & effort ○ less time & effort
○ about the same time and effort

16. When you are graded on a pass-fail basis instead of by letter grade, are you more apt to decide for yourself how you might best distribute your effort among all the topics included in the syllabus?

○ I am more apt to decide for myself in pass-fail courses.

○ I am neither more nor less apt to decide for myself in pass-fail courses.

17. Approximately how many courses have you taken since entering the University (including the courses you are now taking) in which no tests or examinations are given in class?

Number of courses: __________

18. Of these courses, how many did you choose in order to take interesting but difficult or unfamiliar courses in which you otherwise would not have enrolled?

Number of courses: __________

19. Approximately how many of your courses with no examinations were also graded on a pass-fail basis?

○ None
○ About a quarter
○ About a half
○ About three quarters
○ All or almost all

20. Speaking generally, has your attendance in courses without examinations been more regular, less regular, or about the same as in courses with examinations.

○ more regular ○ less regular
○ about the same

21. Speaking generally, did you invest more, less, or about the same time and effort in reading assignments, papers, and projects in courses without examinations as you did in courses with examinations?

○ more time and effort ○ less time and effort
○ about the same time and effort

22. When you take courses that have noexaminations, are you more apt to decide for yourself how you might best distribute your effort among all the topics included in the syllabus?

○ I am more apt to decide for myself in courses that have no examinations.

○ I am neither more nor less apt to decide for myself in courses that have no examinations.

23. For each of the following pairs, please indicate which type of examination you found most useful as a learning device, that is, in helping you to master the work of the course:

○	written examination	OR	oral examination	○
	--- ----	----	---- ----	
○	examination written in class	OR	examination written at home	○
	--- ----	----	---- ----	
○	essay examination	OR	objective examination	○

24. Speaking generally, for each of the following pairs, please indicate which type of examination was more valid as an evaluative device, that is, in yielding grades which accurately reflect your performance in the course:

○	written examination	OR	oral examination	○
	--- ----	----	---- ---	
○	examination written in class	OR	examination written at home	○
	--- ----	----	---- ---	
○	essay examination	OR	objective examination	○

25. Since you have been at Princeton what would you say was the single most valuable academic experience that you have had? (e.g., course, term paper, etc.)

____

____

---

* The form in this appendix was completed by Seniors. Comparable forms with appropriate items added or deleted were distributed to each of the other three classes.

26. What would you say was the single least valuable academic experience that you have had since you have been at Princeton?

____

27. In which of the following organized activities have you participated during your time at Princeton?

○ athletics (e.g., intramural and varsity)
○ debating and discussion groups (e.g., Whig-Clio)
○ action groups (e.g., USA, UAG)
○ community service (e.g., tutoring, Youth Center)
○ governance (UGA, CPUC)
○ cultural groups (ABC, Third World Center)
○ women's groups (NOW)
○ honor societies (e.g., Phi Betta Kappa, Sigma Xi)
○ religous groups (e.g., Procter Foundation, Hillel, Concordia Society, Aquinas)
○ professional groups (e.g., German Club)

If you checked more than one of the above: Which do you consider your major extracurricular activity? ____________________________

28. The following is a list of the creative and performing arts represented at Princeton. Please check those in which you participate in any way (e.g., Music: compose, play an instrument, take a course, attend concerts frequently, etc; Writing: working on novel, write for the Princetonian, attend poetry readings, etc.)

○ writing (please specify type of activity): ____________________________

○ painting, drawing, other graphics (please specify): ________________________

○ film (please specify): ________________________

○ sculpture (please specify): __________________

○ theatre (please specify): ____________________

○ music (please specify): ______________________

○ dance (please specify): ______________________

○ other (please specify): ______________________

If you checked more than one of the above: Which do you consider your major interest:

____

29. As you consider the extracurricular activities you participated in while at Princeton, in which activities do you think you should have spent (answer all that apply):

○ more time (please specify activity): __________________________

○ less time (please specify activity): __________________________

○ satisfied with the extracurricular activities I participated in.

○ undecided

30. During your time at Princeton, have you ever wanted to participate in an extra-curricular activity which does not now exist?

○ I wanted to participate in (please specify): ____________________

○ The present range of extracurricular activities includes all those in which I want to participate.

31. As you think about your experiences at Princeton, if you had it to do all over again would you decide:

○ to attend Princeton

○ to attend another college (please specify): __________________________

○ never attend college and do something else (please specify): __________________________

○ undecided

32. Year entered Princeton: 19__

33. Year of Birth: 19__

34. Marital Status: ○ Married ○ Single

35. Name of secondary school: ________________
Location of secondary school: ________________

36. Sex: ○ Female ○ Male

37. How would you describe yourself? (please check one)

○ American Indian

○ Black, Afro-American, or Negro

○ Mexican-American or Chicano

○ Oriental or Asian-American

○ Puerto Rican or Spanish-Speaking American

○ White or Caucasion

○ Other (please specify): ________________

38. Father's education--check highest level completed:

○ grades 1-8
○ grades 9-12
○ 1-2 years college
○ 3-4 years college
○ some graduate or professional school
○ graduate degree--name highest degree earned: ________________

39. English Verbal College Board Score:

○ 200-300 ○ 400-500 ○ 600-700
○ 300-400 ○ 500-600 ○ 700-800

40. Math College Board Score:

○ 200-300 ○ 400-500 ○ 600-700
○ 300-400 ○ 500-600 ○ 700-800

SPECIAL SENIOR SUPPLEMENT
ON JUNIOR AND SENIOR YEAR INDEPENDENT WORK

I. Roughly speaking, what would you estimate as the total number of hours that you spent working on your junior independent project?

______ total hours

Considering the educational value which you derived from your junior independent work, would you say that you spent too much time, about the right amount of time, or not enough time working on your project?

○ too much time ○ about the right amount of time ○ not enough time

II. What would you estimate as the total number of hours you worked with your adviser on your independent work? ______ total hours

Do you think the amount of time you worked with your adviser was:

○ too much time ○ about the right amount of time ○ not enough time

In retrospect would you have preferred to undertake a substantially different kind of project?

○ Yes ○ No ○ Undecided

III. A major part of the academic experience of the senior year consists of courses and independent work (thesis). Which of the following comes close to describing how you apportioned the time you spent on each?

	1st Semester	2nd Semester
1/8 independent work (thesis), the rest courses	○	○
1/4 independent work (thesis), the rest courses	○	○
1/2 independent work (thesis), the rest courses	○	○
3/4 independent work (thesis), the rest courses	○	○
almost all time on independent work (thesis)	○	○

IV. Roughly speaking, what would you estimate as the total number of hours you spent working on your senior independent project?

__________ total number of hours

Considering the educational value which you derived from your senior independent project, would you say that you spent too much time, about the right time, or not enough time working on your project?

○ too much time ○ about the right amount of time ○ not enough time

V. What would you estimate as the total number of hours you worked with your adviser on your senior independent project?

○ too much time ○ about the right amount of time ○ not enough time

VI. In retrospect would you have preferred to undertake a substantially different kind of project?

○ Yes ○ No ○ Undecided

VII. As you consider the non-departmental courses you have taken at Princeton in which subjects, fields, or areas do you think you should have taken: (Answer all that apply):

○ more courses (please specify): ______________________
○ fewer courses (please specify): ______________________
○ satisfied with the non-departmental courses that I took
○ undecided

Supplementary Questionnaire to
Class of 1972, Undergraduate Survey

1. Did you respond to the five page survey (four pages and supplement) which was distributed by the Commission on the Future of the College in mid April?

   YES____ NO____

2. What would you estimate as the total number of hours you worked with your adviser on your senior thesis or project? TOTAL HOURS____________

3. Do you think the amount of time you worked with your adviser was: TOO MUCH TIME____________

   ABOUT THE RIGHT AMOUNT OF TIME____________

   NOT ENOUGH TIME____________

4. Name (optional)____________________________

B. Survey of the Classes of 1954, 1964, and 1969

1. Please indicate your undergraduate major at Princeton. ______________________

2. If you graduated with honors, did you receive: (please check)

   (a) Regular honors (cum laude) ____

   (b) High honors (magna cum laude) ____

   (c) Highest honors (summa cum laude) ____

3. Please describe your educational career since you received your baccalaureate degree from Princeton.

   (a) How many years of further education have you completed? ___ years ___ none

   (b) Please list all professional schools attended and indicate field pursued. (e.g., Law, Medicine, Divinity, Social Work, etc.)

   Name of School Field

   (c) Please list all graduate schools attended and indicate field pursued. (e.g., Chemistry, Economics, History, etc.)

   Name of School Field

   (d) Please list all other types of schools attended. (e.g., Officers Training, Management Training, etc.)

   Name of School Field

   (e) Please list all earned degrees.

   (f) Please briefly describe your current occupation.

4. Was your father an alumnus of Princeton?

   ____ yes ____ no

5. Please indicate the name of the state or foreign country in which you now reside.

6. Approximately what was your total income before taxes in 1971? (please check)

   ____ under $5,000
   ____ $5,000-$7,499
   ____ $7,500-$9,999
   ____ $10,000-$14,999
   ____ $15,000-$19,999
   ____ $20,000-$24,999
   ____ $25,000-$29,999
   ____ $30,000-$34,999
   ____ $35,000-$50,000
   ____ $50,000 and above

7. What specific characteristics of Princeton's formal academic program did you find particularly stimulating, useful, or valuable? (e.g., courses, term papers, independent work, etc.)

8. What would you say was the single most stimulating, useful, or valuable academic experience that you had at Princeton?

9. What specific characteristics of Princeton's formal academic program did you find particularly boring, useless, or harmful?

10. What specific characteristics of Princeton's extracurricular activities and social life did you find particularly stimulating, useful, or valuable?

11. What would you say was the single most stimulating, useful, or valuable extracurricular activity or aspect of social life that you experienced at Princeton?

12. What specific characteristics of Princeton's extracurricular activities and social life did you find particularly boring, useless, or harmful?

13. Overall, what would you say was the single most stimulating, useful, or valuable educational (academic or non-academic) experience that you had at Princeton?

14. As you look back over your undergraduate years at Princeton, if you had it to do all over again, what would you do differently at the University in connection with your studies, extracurricular activities, or social life? (e.g., take a different major; take more or less work in a particular field, skill, or branch of knowledge; spend more or less time in any specific extracurricular or social activity, etc.) Please be as specific as space allows.

15. As you look back over your undergraduate years at Princeton, what do you wish would have been different about the University? (e.g., composition of the student body; other methods of instruction; different extracurricular activities or social options, etc.)

16. As you think about your experiences while you were at Princeton, if you had it to do all over again, would you decide:

____ to attend Princeton
____ to attend another college or university (please specify) ____________
____ never attend college
____ undecided

17. If a son of yours, who was eligible for Princeton and wished to apply, asked for your advice, would you advise him:

____ to attend Princeton
____ to attend another college or university (please specify) ____________
____ never attend college
____ undecided

18. If a daughter of yours, who was eligible for Princeton and wished to apply, asked for your advice, would you advise her:

____ to attend Princeton
____ to attend another college or university (please specify) ____________
____ never attend college
____ undecided

19. The Commission would greatly appreciate any additional comments about your undergraduate career or any suggestions you wish to make about the future of the College. Please use a separate sheet if necessary.

C. Educational Testing Service-Princeton University Joint Study
National Confidential Survey of College-Bound Seniors

Dear Senior:

Your name has been randomly selected for this special study from among the many thousands of seniors who are expected to attend America's colleges and universities next autumn.

Would you please answer the questions below and return this questionnaire as soon as possible in the enclosed postage paid envelope.

Please note that the entire questionnaire will take only ten or fifteen minutes to complete and that it is strictly confidential: your name appears nowhere on the questionnaire and there is no way to know that it is you who have returned it.

Thank you for your cooperation. The information you furnish will provide invaluable knowledge about the background, needs, preferences, and goals of college-bound youth.

1. What kind of secondary school did you attend this year?

( ) 1) Public high school
( ) 2) Private, non-religious, non-military
( ) 3) Catholic
( ) 4) Jewish
( ) 5) Military
( ) 6) Other ______________

1a. Was the school you attended primarily a day school or a boarding school?

( ) 1) a day school
( ) 2) a boarding school

2. About how many students were there in your graduating class?

( ) 1) Less than 50
( ) 2) 50 - 99
( ) 3) 100 - 399
( ) 4) 400 - 999
( ) 5) 1000 plus

3. For each of the activities listed below, please indicate the extent of your participation in secondary school, as follows:

Circle "1" if you did not participate (dnp)
Circle "2" if you participated but not very actively (p)
Circle "3" if you participated very actively (va)

	dnp	p	va
a. Dramatic activities (theater groups, etc.)	1	2	3
b. Music activities (band, chorus, etc.)	1	2	3
c. Athletics (intramural, varsity, etc.)	1	2	3
d. Action groups (ecology, politics, etc.)	1	2	3
e. Journalism (yearbook, newspaper, etc.)	1	2	3
f. Community service (tutoring, recreation)	1	2	3
g. Women's rights activities (National Organization for Women, etc.)	1	2	3
h. Academic honor groups	1	2	3
i. Student government activities	1	2	3
j. Groups emphasizing cultural, racial, or national identity	1	2	3
k. Activities sponsored by a religious group	1	2	3
l. Hobby groups (e.g., photography, stamps)	1	2	3

4. What will you be doing next fall as your principal activity? Check only one.

( ) 1) Attending a college or university
( ) 2) Working for pay
( ) 3) Travel or other broadening experience
( ) 4) Engaged in a volunteer community or social program
( ) 5) In military service
( ) 6) Other ______________

5. What will you be doing this summer? Check all activities in which you may be engaged for a month or more.

( ) 1) Attending a college or university
( ) 2) Working for pay
( ) 3) Travel or other broadening experience
( ) 4) Engaged in a volunteer community or social program
( ) 5) Other ______________

6. Where is your home presently located?

( ) 1) NORTHEAST (Conn., Del., Mass., Me., NH, NJ, NY, Pa., RI, Vt.)
( ) 2) SOUTHEAST (DC, Fla., Ga., Md., NC, SC, Va., WVa.)
( ) 3) SOUTH CENTRAL (Ala., Ark., Ky., La., Miss., Okla., Tenn., Tex.)
( ) 4) NORTH CENTRAL (Ill., Ind., Iowa, Kans., Mich., Minn., Mo., Nebr., NDak., Ohio, SDak., Wis.)
( ) 5) PACIFIC MOUNTAIN (Ariz., Cal., Col., Ida., Mont., NM, Nev., Ore., Utah, Wash., Wyom.)
( ) 6) Alaska, Hawaii
( ) 7) Non-U.S.

7. Which one of the following most accurately describes your father's formal educational experience?

( ) 1) Did not complete high school
( ) 2) Completed high school but did not attend college
( ) 3) Some college attendance
( ) 4) Graduated from college (4-year)
( ) 5) Some post-college study but not for a degree
( ) 6) Earned graduate or professional degree (e.g., MA, PhD, MD, etc.)

8. Approximately, what was the total income of your parental family, before taxes, in 1971?

( ) 1) Under $5,000
( ) 2) $5,000 - $7,499
( ) 3) $7,500 - $9,999
( ) 4) $10,000 - $14,999
( ) 5) $15,000 - $19,999
( ) 6) $20,000 - $24,999
( ) 7) $25,000 - $29,999
( ) 8) $30,000 - $34,999
( ) 9) $35,000 and over

9. Indicate the importance to you personally of each of the following. (Circle one for each item.)

Circle "1" if this is an Essential objective
Circle "2" if it is Very Important but not essential
Circle "3" if Somewhat important
Circle "4" if Not important to you

	E	V	S	N
a. Becoming accomplished in one of the performing arts (acting, dancing, etc.)	1	2	3	4
b. Becoming an authority in my field	1	2	3	4
c. Obtaining recognition from my colleagues for contributions in my special field	1	2	3	4
d. Influencing the political structure	1	2	3	4
e. Influencing social values	1	2	3	4
f. Raising a family	1	2	3	4
g. Having an active social life	1	2	3	4
h. Having friends with different backgrounds and interests from mine	1	2	3	4
i. Becoming an expert in finance and commerce ..	1	2	3	4
j. Having administrative responsibility for the work of others	1	2	3	4
k. Being well-off financially	1	2	3	4
l. Helping others who are in difficulty	1	2	3	4
m. Participating in an organization like the Peace Corps or Vista	1	2	3	4
n. Becoming a community leader	1	2	3	4
o. Making a theoretical contribution to science	1	2	3	4
p. Writing original works (poems, novels, short stories, etc.)	1	2	3	4
q. Never being obligated to people	1	2	3	4
r. Creating artistic work (painting, sculpture, decorating, etc.)	1	2	3	4
s. Keeping up to date with political affairs ...	1	2	3	4
t. Being successful in a business of my own	1	2	3	4
u. Becoming involved in programs to clean up the environment	1	2	3	4
v. Developing a meaningful philosophy of life ..	1	2	3	4
w. Participating in a community action program .	1	2	3	4
x. Getting married within the next five years ..	1	2	3	4

10. What is the highest level of education you expect to complete beyond secondary school?

( ) 1) NONE. I do not plan to attend college or continue my formal education. (SKIP TO QUESTION 25, last page.)
( ) 2) One year of college
( ) 3) A two-year program in junior college or technical school
( ) 4) A bachelor's degree program (BA or BS)
( ) 5) A graduate or other professional degree (e.g., Law, MD, PhD, Master's)

11. In deciding to go to college, how important was each of the following reasons? Mark one answer for each reason, as follows:

Circle "1" if reason was Very Important
Circle "2" if reason was Somewhat Important
Circle "3" if reason was Not Important

	VI	SI	NI
a. My parents wanted me to go	1	2	3
b. To be able to contribute more to my community	1	2	3
c. To be able to get a better job	1	2	3
d. To gain a general education and appreciation of ideas	1	2	3
e. There is nothing better to do	1	2	3
f. To make me a more cultured person	1	2	3
g. To be able to make more money	1	2	3
h. To learn more about things that interest me ..	1	2	3
i. To meet new and interesting people	1	2	3
j. To prepare myself for graduate or professional school	1	2	3

12. Do you now have a fairly good idea of the field in which you would like to major in college?

( ) 1) Yes ( ) 2) No

12a. If "yes," what is the field? (e.g., biology, history, education, etc.) Write in below:

____

13. Do you have a fairly good idea of the type of work you would like to do after you complete your formal education?

( ) 1) Yes ( ) 2) No

13a. If "yes," what is the type of work (e.g., teaching, law, engineering, etc.)? Write in below:

____

14. To how many colleges did you apply for admission?

(_________) Write in the number to which you applied.

15. How many colleges offered you admission?

(_________) Write in the number offering admission.

16. What is the name of the college you EXPECT TO ATTEND?

Name of College ____________________ State

16a. Will you be receiving financial aid from this college?

( ) 1) Yes ( ) 2) No ( ) 3) Pending

16b. Were you accepted under a "deferred admission" plan?

( ) 1) Yes ( ) 2) No ( ) 3) Pending

17. According to your present plans, do you intend to try to earn your bachelor's degree in less than four calendar years?

( ) 1) Yes ( ) 2) No ( ) 3) Undecided

( ) 4) Will not seek a Bachelor's degree

17a. If "yes," how do you plan to complete your college work in less time? Check all applicable items.

( ) 1) Earn college credit through examination

( ) 2) Take additional courses during the academic year

( ) 3) Take additional courses in summer school

( ) 4) Other (please specify) ____________________

18. Of all the colleges to which you actually applied for admission, which ones did you most want to attend? Please write in below the most preferred colleges (up to four) and indicate the status of your application to each by circling a number in the appropriate column.

		Status of application		
Rank-order of preference	Name of College	Accptd.	Rejctd.	Pend.
1st choice	____________________ State	1	2	3
2nd choice	____________________	1	2	3
3rd choice	____________________	1	2	3
4th choice	____________________	1	2	3

THE QUESTIONS WHICH FOLLOW ON THIS PAGE HAVE TO DO WITH YOUR FIRST-CHOICE COLLEGE (i.e.,) THE COLLEGE YOU NAMED FIRST IN QUESTION 18

19. Which one of the following statements is most applicable to your first-choice college?

( ) 1) It is a traditionally co-educational institution

( ) 2) It was recently a men's college but is now coeducational

( ) 3) It was recently a women's college but is now coeducational

( ) 4) It is a college for men

( ) 5) It is a women's college

20. What type of institution is the first-choice college named in Question 18?

( ) 1) A public college or university

( ) 2) A private, church-related college or university

( ) 3) An independent, private college or university

( ) 4) A public community or junior college

( ) 5) A private, church-related junior college

( ) 6) An independent, private junior college

( ) 7) Other ____________________

21. When did you first entertain the thought of attending your first-choice college?

First thought of attending

( ) 1) Quite early (e.g., grade school)

( ) 2) During grades 7, 8, or 9

( ) 3) While in 10th grade

( ) 4) While in 11th grade

( ) 5) During the current school year

22. Did any of your relatives attend the first-choice college you named in Question 18? Check all applicable.

( ) 1) mother ( ) 2) father ( ) 3) sister

( ) 4) brother ( ) 5) grandparent(s)

( ) 6) uncle/aunt/cousin

23. The following is a list of persons from whom you may have obtained advice while you were trying to make up your mind about the colleges to which you would apply. Please check in the appropriate column (1) all sources from which you received advice and (2) those, if any, which directly influenced you to prefer the school you named as your first choice in Question 18 over the other colleges to which you applied.

Source	Received advice from	Directly influenced by
A clergyman	1	2
Your parents or family	1	2
A community or national leader	1	2
A teacher in my school	1	2
A member of the faculty at the first-choice college	1	2
A personal friend	1	2
The college's admissions officer	1	2
An alumnus(a) of the college who was not a member of my family	1	2
A student at the college	1	2
A school guidance counselor	1	2
My school principal or headmaster	1	2
A coach at the first-choice college	1	2
My high school coach	1	2
Other ____________________	1	2

24. In thinking back over the process through which you decided about which colleges you would seriously consider attending, to what extent and in what way would you say that you considered each of the characteristics or features of colleges listed below. Indicate the degree and type of consideration given to each characteristic according to this key:

Circle the "1" if Extremely Desirable (ED): The college must have this characteristic or I would not attend

Circle the "2" if Desirable (D): Prefer this characteristic but would not insist on it

Circle the "3" if Neutral (N): This feature does not really matter one way or the other

Circle the "4" if Undesirable (U): Do not prefer this characteristic but could tolerate it

Circle the "5" if Extremely Undesirable (EU): If the college had this characteristic I would not attend

NOTE: THERE SHOULD BE ONE RATING FOR EACH CHARACTERISTIC

CHARACTERISTIC The institution should be one:	How you rate the characteristic (ED) Ext. des.	(D) Des.	(N) Neut.	(U) Un-des.	(EU) Ext. undes.
a. which is located in a particular state, or section of the country	1	2	3	4	5
b. with an established national reputation	1	2	3	4	5
c. with high academic standards	1	2	3	4	5
d. which has a reputation for student activism	1	2	3	4	5
e. with a strong intercollegiate athletic program	1	2	3	4	5
f. with special strength or reputation in a particular field of study	1	2	3	4	5
g. with special strength in one or more of the arts (music, art, drama, dance, etc.)	1	2	3	4	5
h. which is coeducational	1	2	3	4	5
i. with a reputation for educational innovation (e.g., nontraditional practices in grading, flexible curriculum requirement, three-year BA, etc.)	1	2	3	4	5
j. which is located in or very near a large city	1	2	3	4	5
k. which is located near several other colleges	1	2	3	4	5
l. which is near my home	1	2	3	4	5
m. with relatively low tuition-room-board	1	2	3	4	5
n. which is church-related	1	2	3	4	5
o. which is relatively small	1	2	3	4	5
p. which offers special opportunities for disadvantaged students	1	2	3	4	5
q. with a high ratio of faculty to students, small classes, etc.	1	2	3	4	5
r. with active student participation in its governance at all levels	1	2	3	4	5
s. which is part of a university	1	2	3	4	5
t. other ______________________________	1	2	3	4	5

SOME QUESTIONS ABOUT YOURSELF AND YOUR BACKGROUND

25. How you describe yourself:

( ) 1) American Indian
( ) 2) Black, Afro-American, or Negro
( ) 3) Mexican-American or Chicano
( ) 4) Oriental or Asian-American
( ) 5) Puerto Rican or other Latin-American descent
( ) 6) White or Caucasian
( ) 7) ______________________
Other

26. Your sex? ( ) 1) Female ( ) 2) Male

27. Your secondary school class standing?
( ) 1) Top quarter ( ) 2) 2nd quarter
( ) 3) 3rd quarter ( ) 4) 4th quarter

28. Your religious preference
( ) 1) Catholic
( ) 2) Jewish
( ) 3) Protestant
( ) 4) Other ________

29. Your highest College Board SAT scores? Please indicate the interval which includes your highest SAT-Verbal score (SAT-V) and that which includes your highest SAT-Mathematical (SAT-M) score

Score Interval	SAT-V	SAT-M
400 - 440	(1)	(1)
450 - 490	(2)	(2)
500 - 540	(3)	(3)
550 - 590	(4)	(4)
600 - 640	(5)	(5)
650 - 690	(6)	(6)
700 plus	(7)	(7)

30. Do you think that you were academically ready for college by the end of your junior year?
( ) 1) Yes ( ) 2) No ( ) 3) Don't know

31. Do you think you were emotionally ready for college by the end of your junior year?
( ) 1) Yes ( ) 2) No ( ) 3) Don't know

32. Do you think you would have entered college after completing your junior year if you had been offered the opportunity? ( ) 1) Yes ( ) 2) No ( ) 3) Don't know

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REFERENCES AND NOTES

Sections of this report have been paraphrased or directly reproduced without attribution from reports in the files of the Offices of the Dean of the College, Admissions, and the Registrar. Selected materials which appeared in earlier publications bearing on the Commission's work have been incorporated in the present document in slightly altered form. These include Marvin Bressler, "A Report to the Commission on the Future of the College," 1971; "The American College: Some Problems and Choices," *The Annals*, 396, July 1971, pp. 57-69; "The Liberal Synthesis in American Higher Education," *The Annals*, 404, November 1972, pp. 183-193; and Marvin Bressler and Judith Higgins, *The Political Left on Campus and in Society: The Active Decades*, Office of Education, Bureau of Research, December 1972.

CHAPTER I

1. Robert F. Goheen, "Charge to the Commission on the Future of the College," December 1970.
2. Members of the classes of 1954, 1964, and 1969 are now approximately 40, 30, and 25 years old respectively and are thus presumed to have perspectives on their Princeton experiences which differ according to their stage in the life cycle. The survey instrument was sent to all members of each class on the mailing list of the Alumni Records Office (1954, N = 760; 1964, N = 823; 1969, N = 856; total, N = 2439) and the return rate for each class was 38 percent, 44 percent, and 42 percent respectively for a total return rate of 39 percent.

   The responses were very illuminating especially the appended comments which were included as part of many returns. Overall, both the quantitative data and the discursive materials reveal considerable satisfaction with the quality of Princeton's education both in its formal aspects and beyond the classroom. A separate article will appear on the Alumni Survey at a future time.

   The Undergraduate Survey which elicited responses on a great number of issues discussed in this report was administered in the spring of 1972 and was based on a 25 percent systematic sample (1350 students, 1140 returns, response rate 85 percent) of the entire undergraduate student body. The response rate for each class was 1972, 73 percent; 1973, 82 percent; 1974, 91 percent; and 1975, 95 percent.
3. Goheen, *loc. cit.*
4. Gilbert Tennent and Samuel Davies, "A General Account of the Rise and State of the College, Lately Established in the Province of New Jersey in America," in Richard Hofstadter and Wilson Smith, eds., *American Higher Education: A Documentary History*, vol. 1, Chicago, University of Chicago Press, 1961, pp. 91-92.
5. Woodrow Wilson, "Princeton in the Nation's Service," in Hofstadter and Smith, *op. cit.*, p. 694.
6. Harvard University, Committee on the Objectives of a General Education in a Free Society, *General Education in a Free Society*, Cambridge, Harvard University Press, 1945, p. 43.
7. Clark Kerr, *The Uses of the University*, Cambridge, Harvard University Press, 1963, p. 18.
8. Alexander Meiklejohn, *The Liberal College*, Boston, Jones, 1920, p. 32.
9. Robert F. Goheen quoted in *Bergen County Record*, August 17, 1971.
10. Jacob Bronowski, *Science and Human Values*, New York, Julian Messmer, Inc., 1956, pp. 56-57.
11. William G. Bowen quoted in an interview by William T. McCleary, "Higher Education's Response to Changing Times," *University: A Princeton Quarterly*, 53, Summer 1972, p. 2.
12. Joseph F. Strayer, "A Brief Sketch of the Development of the Princeton Plan of Undergraduate Education," mimeo., p. 1, n.d.
13. John Henry Cardinal Newman, *The Idea of a University*, Holt, Rinehart, and Winston, New York, 1964, pp. 109-110.

CHAPTER II

1. See S. A. Kendrick and Charles L. Thomas, "Transition From School to College," *Review of Educational Research*, 40, 1, February 1970, pp. 151-179.
2. This information is derived from a survey conducted jointly by the Commission on the Future of the College and the Educational Testing Service and is based on a ten percent systematic sample (4341 students, 2626 returns, response rate 60 percent) of high school seniors who scored 600 or higher on the SAT Verbal Examination administered in November 1971.
3. College Entrance Examinations Board, "Advanced Placement Examinations," May 1971.
4. The lowest proportion of students scoring three or higher in an Advanced Placement examination is 66 percent in "Latin/Virgil." For other subjects at least four-fifths of all students performed at this level or better.
5. This analysis was conducted as part of the work of the Commission by Richard R. Spies who is now Assistant Provost.
6. Ann Douglas Wood, "How Liberation of Women Can Improve Higher Education," *University: A Princeton Quarterly*, 52, Spring 1972, p. 12.
7. *Ibid.*
8. Provost F. Sheldon Hackney quoted in the *New York Times*, February 19, 1973.
9. This information is based on two separate studies conducted by Richard R. Spies, "Admissions Trends at Select Colleges and Universities," and "The Future of Private Colleges: The Effect of Rising Costs on College Choice," (financed by the Alfred P. Sloan Foundation).
10. Princeton—Educational Testing Service Survey of Gifted High School Seniors, November 1971.
11. Lewis S. Feuer, *The Conflict of Generations*, New York, Basic Books, 1969. See Chapter 7, "Generational Equilibrium in the United States."
12. *Ibid.*, pp. 328-329.
13. See John C. Graves, "Student Attitudes Change Dramatically in Decade," in *Sixty in Seventy*, Class of 1960, Princeton University, pp. 7-13.
14. James S. Davie and A. Paul Hare, *Button Down Collar Culture: A Study of Undergraduate Life at Princeton University, 1951-52*, hectographed, approximately 150 pages. This is an unpublished research paper conducted as part of The Study of Education at Princeton directed by Frederick S. Stephan.
15. Upperclass Choice Committee, *Upperclass Choice Book, 1975*, 1972.
16. Quoted in William McCleary, "An Informal Call on Princeton's Robert F. Goheen in his Tenth Year as President," *University: A Princeton Quarterly*, 31, Winter 1966-67, pp. 10-11.

CHAPTER III

1. For an excellent discussion of this question, see Gardner Patterson, *The Education of Women at Princeton*, Chapter II, Princeton, 1968.
2. The basic ideas in this paragraph are taken directly from an excellent summary of the legal issues, drawn up at our request by Thomas H. Wright, University Legal Counsel.

3. By "composition" here we mean either the ratio of men to women, or the absolute number in either group. Since class size is limited by the considerations governing overall size of the College, the absolute numbers of men and women are constrained, under a policy of free access, by the class size and the composition of the applicant pool.
4. A study of applicant pools at several institutions (including Stanford, Chicago, Harvard-Radcliffe, Smith, and others) reveals that quite apart from the total size of particular institutions or their male-female ratios, no institutions similar in scale to Princeton recorded more than approximately 3200 applications from women per year. This in itself suggests that it is unlikely that Princeton will exceed such a number in the near future. An increase on women's applications of five percent per year for the next five years would yield approximately 3100 applications.
5. In some respects, the precise percentages for each group are less important than the *differential* between the groups. Even if total applications *decreased* in actual numbers, so long as women's applications decreased at a markedly slower rate (four percent per year less), the arguments in this section of the report would not be affected. The central issue in dealing with "composition" is ratio, and this depends not on absolute but on relative numbers.
6. The estimates presented below should be understood as allowing for fluctuations of about three percent in any given year, on both men and women, to reflect annual fluctuations in the percentage of those who accept our offers of admission (i.e., variations in yield). Thus, when we say that a given applicant pool would yield a class consisting of 800 men and 300 women, we mean only that it will yield a class with numbers of men and women students in the [775-825] and [290-310] ranges, respectively. For example, the targets of 800/300 for the class of 1976 yielded 785 men and 299 women.
7. It must be remembered that fluctuations within the predicted range of +$6600 to −$180,000, although hardly insignificant, are nevertheless relatively small in a budget of about $85 million.
8. It *could* be achieved in another way, namely by cutting down on the number of transfer students in favor of slightly larger entering classes. We are not inclined to make this recommendation but we mention it here because the availability of that option yields an alternative way of gaining that benefit. The policy on this matter should, of course, be sufficiently flexible to permit adjustments from year to year to take advantage of opportunities that may present themselves in the form of particularly talented people in either group.

CHAPTER IV

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CHAPTER V

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CHAPTER VI

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TABLES TO CHAPTER 1 1.1 THROUGH 1.2

Table 1.1

Proportion Who Would Attend Princeton as
Against Other Alternatives if They
"Had it to do Over Again",
Classes of 1954, 1964, and 1969

		Alumni Class		
	Total (N=971)	1954 (N=272)	1964 (N=347)	1969 (N=352)
To attend Princeton	83%	86%	80%	83%
To attend another college or university	8	7	8	9
Never attend college	---	---	---	1
Undecided	9	7	12	7
TOTAL	100%	100%	100%	100%

Table 1.2

Proportion Who Would Attend Princeton as
Against Other Alternatives if They
"Had it to do Over Again," Systematic Sample,
Class of 1972 (N=303)

To attend Princeton	73%
To attend another college or university	15
Never attend college	1
Undecided	11
TOTAL	100%

TABLES TO CHAPTER 2   2.1 THROUGH 2.21

Table 2.1

PRELIMINARY APPLICATIONS, COMPLETED APPLICATIONS, AND STUDENTS ADMITTED AND ENROLLED, 1958 - 1972

YEAR CLASS	1958 1962	1959 1963	1960 1964	1961 1965	1962 1966	1963 1967	1964 1968	1965 1969	1966 1970	1967 1971	1968 1972	1969 1973	1970 1974	1971 1975	1972 1976
Preliminary Applications	4591	4757	5615	5334	5068	5882	6432	7339	7408	7075	7384	7721	11417	11632	11260
Completed Applications	3213	3280	3883	3661	3928	4466	4908	5464	5628	5579	5511	6088	8382	8155	8446
Initial Admits	1228	1275	1264	1239	1248	1205	1165	1210	1198	1251	1306	1487	1570	1976	1993
Initial Accepts	697	801	826	759	793	819	783	826	757	806	791	921	895	1092	1077
Deferred Entrance	9	8	16	13	12	10	8	10	10	4	11	3	16	32	26
% Entering	56.75	62.82	65.34	61.25	63.54	67.96	67.21	68.26	63.18	64.42	60.56	61.94	57.01	55.26	54.04
Alternate Admits	60	0	0	55	14	10	33	0	66	12	86	0	122	129	26
Total Admits	1288	1275	1264	1294	1262	1215	1198	1210	1264	1263	1392	1487	1692	2105	2019
% of Applicants Admitted	40.09	38.87	32.55	35.35	32.12	27.20	24.40	22.14	22.45	22.63	25.25	24.43	20.19	25.81	23.90
Total Accepts	757	801	826	814	807	829	816	826	823	818	857	921	991	1139	1098
% Entering	58.77	62.82	65.34	62.91	63.94	68.23	68.11	68.26	65.11	64.76	61.56	61.94	58.57	54.11	54.38

Table 2.2

Percentage of Students With Various Academic Ratings Who Graduated With Honors, Were Inducted into Phi Beta Kappa, or Who Were Required to Withdraw

	Academic Rating			
	1	2	3	4-5*
Phi Beta Kappa °	28.1% (N=132)	9.8% (N=169)	2.5% (N=35)	.4% (N=2)
Graduating With Honors, High Honors, or Highest Honors °°	66.3 (N=132)	45.7 (N=327)	30.5 (N=174)	19.6 (N=31)
Required to Withdraw Prior to Graduation °	3.8 (N=18)	3.1 (N=54)	5.4 (N=77)	6.8 (N=35)

° Based on the Classes of 1968 - 1972 (N=4133) - Classes of '73 - '76 have not yet graduated

°° Based on Classes of 1968 and 1969 (N=1643) - Data unavailable for other classes

* NOTE: Since the number of entering students with a "five" rating is not statistically significant for this presentation, this very small group has been merged with those in the "four" category.

Table 2.3

Percent Yield, Academic I
1967-72

Year	Number Admitted	Number Entering	% Entering	% Class	% Yield for Total Admitted Class
1967	202	102	50.5	12.5	64.8
1968	209	87	41.6	10.2	61.6
1969	222	101	45.5	11.0	61.9
1970	348	156	44.8	15.7	58.6
1971	432	170	39.4	14.9	54.1
1972	418	148	35.4	13.5	54.4

Table 2.4 - COLLEGES ENTERED BY STUDENTS DECLINING ADMISSION 1958-1972

(Note: Only those colleges are included which received 5 or more Princeton declines in any single year. Previous to 1960 students were not asked to report the college of their choice. In 1961 and 1962 this data was only partially recorded.)

YEAR CLASS	1958 1962	1959 1963	1960 1964	1961 1965	1962 1966	1963 1967	1964 1968	1965 1969	1966 1970	1967 1971	1968 1972	1969 1973	1970 1974	1971 1975	1972 1976	Total of Available Figures
Harvard/Radcliffe	NA	NA	107	119	122	129	119	124	143	150	132	157	198	245	259	2,004
Yale	NA	NA	70	83	87	74	92	76	101	110	127	133	182	224	204	1,563
Stanford	NA	NA	18	24	27	13	23	27	28	21	35	30	32	49	44	371
M.I.T.	NA	NA	21	19	22	15	17	17	18	13	35	28	50	66	49	370
Dartmouth	NA	NA	30	28	15	12	15	8	17	15	19	18	9	18	21	225
Cornell	NA	NA	8	11	NA	14	13	7	5	1	15	16	12	16	20	138
Brown	NA	NA	8	NA	NA	3	1	5	4	3	4	11	5	25	23	92
Williams	NA	NA	13	14	NA	5	4	5	5	7	4	5	8	7	12	89
Swarthmore	NA	NA	3	NA	NA	5	3	4	9	6	2	5	13	12	8	70
Cal. Tech	NA	NA	7	6	NA	1	6	0	2	8	2	7	10	7	13	69
Amherst	NA	NA	6	9	NA	3	2	3	7	2	4	6	6	4	6	58
Columbia	NA	NA	6	NA	NA	6	4	1	3	3	8	6	4	9	7	57
U.S. Naval Academy	NA	NA	9	NA	NA	3	6	4	4	6	5	2	2	0	4	45
U.S. Military Academy	NA	NA	7	NA	NA	5	3	6	5	5	4	3	1	2	2	43
Univ. of Virginia	NA	NA	1	NA	NA	1	3	2	5	2	1	4	3	12	8	42
Univ. of Pennsylvania	NA	NA	3	NA	NA	2	1	1	1	2	7	2	4	7	11	41
Northwestern	NA	NA	2	NA	NA	1	4	2	1	2	0	3	2	13	8	38
Wesleyan	NA	NA	1	10	NA	1	0	1	0	1	4	5	4	6	4	37
Duke	NA	NA	4	NA	NA	0	1	0	5	2	2	3	4	8	7	36
Haverford	NA	NA	2	NA	NA	1	2	2	1	4	1	3	4	5	4	29
Univ. of No. Carolina	NA	NA	0	NA	NA	3	2	1	2	5	3	7	3	0	0	26
Notre Dame	NA	NA	0	NA	NA	2	0	1	5	1	3	0	2	5	2	21
Rice	NA	NA	2	NA	NA	5	2	1	4	0	0	1	2	1	3	21
Univ. of Michigan	NA	NA	1	NA	NA	1	0	3	3	5	1	0	1	4	2	21
Univ. of Chicago	NA	NA	0	NA	NA	2	1	1	2	0	2	1	3	6	2	20
Johns Hopkins	NA	NA	1	NA	NA	0	1	1	0	2	1	5	3	1	2	17
Oberlin	NA	NA	3	NA	NA	3	0	0	0	0	2	0	1	5	1	15
Pennsylvania State Univ.	NA	NA	0	NA	NA	0	0	0	0	0	1	1	1	7	5	15
R.P.I.	NA	NA	0	NA	NA	0	2	1	2	0	1	1	0	2	5	14
Carleton	NA	NA	3	NA	NA	1	1	1	1	0	0	1	0	0	5	13

Table 2.5

COLLEGES ENTERED BY APPLICANTS WHO DECLINED ADMISSION TO PRINCETON

	1972		1971		1970		1969	1968	1967
	M	F	M	F					
Harvard/Radcliffe	217	42	200	45	177	(21)*	149	132	150
Yale	148	56	176	48	152	(30)*	133	127	110
M.I.T.	47	2	59	7	50		28	35	13
Stanford	34	10	39	10	32		30	35	21

	1971-72		
	M	F	TOTAL
Brown	18	5	23
Dartmouth	19	2	21
Cornell	15	5	20
Cal Tech	13	0	13
Williams	6	6	12
Univ. of Pennsylvania	8	3	11
Northwestern	4	4	8
Swarthmore	4	4	8
Univ. of Virginia	5	3	8
Columbia	7	0	7
Duke	6	1	7
Amherst	6	0	6
Carleton	3	2	5
Penn State	2	3	5
Rensselaer Poly. Inst.	4	1	5
Haverford	4	0	4
U.S. Naval Acad.	4	0	4
Wesleyan	1	3	4
Boston Univ.	1	2	3
Bowdoin	3	0	3
Rice	3	0	3
Rutgers	2	1	3
Univ. of Cincinnati	3	0	3
Colgate	2	0	2
Harvey-Mudd	2	0	2
Holy Cross	2	0	2
Howard	2	0	2
Johns Hopkins	1	1	2
Lafayette	2	0	2
Notre Dame	2	0	2
Purdue	2	0	2
Tufts	2	0	2
U.S. Air Force Acad.	2	0	2
U.S. Military Acad.	2	0	2
Univ. of Chicago	1	1	2
Univ. of Delaware	2	0	2
Univ. of Michigan	2	0	2
Vassar	0	2	2
Washington & Lee	2	0	2
Washington University	1	1	2
Brandeis	0	1	1
Bryn Mawr	0	1	1
Cambridge	1	0	1

	1971-72		
	M	F	TOTAL
Carnegie-Mellon Univ.	1	0	1
Case Inst. of Tech	1	0	1
Central Michigan Univ.	1	0	1
Cooper Union	1	0	1
Florida Univ.	1	0	1
Gen Motors Inst.	1	0	1
Goucher	0	1	1
Hampden-Sydney	1	0	1
Hampshire College	0	1	1
Hofstra	1	0	1
Indiana Univ. of Pa.	1	0	1
Juniata	1	0	1
Miami Univ. of Ohio	1	0	1
Middlebury	1	0	1
Mt. Holyoke	0	1	1
Muhlenburg	0	1	1
Oberlin	1	0	1
Rensselaer	1	0	1
Schiller	1	0	1
Smith	0	1	1
St. John	0	1	1
Stony Brook Univ.	1	0	1
Univ. of Arizona	1	0	1
Univ. of California	0	1	1
Univ. of Denver	1	0	1
Univ. of Hawaii	0	1	1
Univ. of Illinois	1	0	1
Univ. of Kentucky	1	0	1
Univ. of Maryland	0	1	1
Univ. of Miami	1	0	1
Univ. of Minnesota	1	0	1
Univ. of North Dakota	1	0	1
Univ. of Rochester	1	0	1
Univ. of Wisconsin	0	1	1
Ursinus	1	0	1
Valparaiso	1	0	1
Wake Forest	1	0	1
West Point	1	0	1
Wilkes	1	0	1
William & Mary	1	0	1
Xavier	1	0	1
Unknown	25	7	32

DECLINED ADMISSION AT THE FOLLOWING COLLEGES TO ENTER PRINCETON

	1972		1971		1970		1969	1968	1967
	M	F	M	F	M	F			
Harvard/Radcliffe	44	26	46	19	46	13	28	20	41
Yale	107	31	102	18	79	15	67	106	88
M.I.T.	46	9							
Stanford	41	17	34	23					

* Women

Table 2.6

MEAN COLLEGE BOARD SCORES FOR APPLICANTS, ADMITS, AND ACCEPTS, 1958 - 1972

YEAR	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
CLASS	1962	1963	1964	1965	1966	1967	1968**	1969***	1970***	1971	1972	1973	1974	1975	1976
Complete Applications															
SAT Verbal	-	-	-	589	604	615	614	630	631	619	622	612	610	600	601
SAT Math	-	-	-	623	647	653	666	679	671	664	666	658	642	638	637
Achievement	-	-	-	*598	*614	*613	*626	632	637	640	636	630	631	631	632
Admits															
SAT Verbal	-	-	-	-	-	-	654	661	660	656	652	648	656	657	644
SAT Math	-	-	-	-	-	-	707	705	705	696	693	690	684	690	680
Achievement	-	-	-	-	-	-	-	669	673	677	667	668	683	687	676
Accepts															
SAT Verbal	620	637	641	645	651	661	645	655	647	647	641	640	645	648	630
SAT Math	667	681	675	680	694	701	705	702	695	690	684	683	674	680	668
Achievement	614	639	638	635	636	645	642	663	663	672	657	658	673	679	662

- Information not available

* Approximate figure, more precise information not available

** Beginning with the Class of 1968, if an individual reported more than one score on a single test, the average of these scores was reported rather than the individual's highest score as in previous years.

*** For the Classes of 1969 and 1970, median rather than mean scores were computed; the median score runs higher.

Table 2.7

ALUMNI SON AND DAUGHTER APPLICANTS,

ADMITS AND ACCEPTS, 1958 - 1972

YEAR CLASS	1958 1962	1959 1963	1960 1964	1961 1965	1962 1966	1963 1967	1964 1968	1965 1969	1966 1970	1967 1971	1968 1972	1969 1973	1970 1974	1971 1975	1972 1976
Completed Applications	233	264	287	298	288	264	306	355	325	308	358	406	486	430	464
Admits	163	200	193	198	167	180	181	192	152	158	202	200	193	196	209
% Admitted	69.96	75.76	67.25	66.44	57.99	68.18	59.15	54.08	46.77	51.30	56.42	49.26	39.71	45.58	45.04
Accepts	133	179	170	170	141	161	159	166	128	130	174	156	150	146	165
% Entering	81.66	89.50	88.08	85.86	84.43	89.44	87.85	86.46	84.21	82.28	86.14	78.00	77.72	74.49	78.95
% of Entering Class	18.23	22.35	20.58	20.88	17.47	19.42	19.49	20.10	15.55	15.89	20.30	16.94	15.14	12.82	15.03

Table 2.8

BLACK APPLICANTS, ADMITS AND ACCEPTS,

1958 - 1972

YEAR CLASS	1958 1962	1959 1963	1960 1964	1961 1965	1962 1966	1963 1967	1964 1968	1965 1969	1966 1970	1967 1971	1968 1972	1969 1973	1970 1974	1971 1975	1972 1976
Completed Applications	-	-	-	-	-	20	72	88	89	83	143	325	620	600	654
Admits	-	-	-	-	-	11	19	27	32	23	76	111	167	181	213
% Admitted	-	-	-	-	-	55.00	26.39	30.68	35.96	27.71	53.15	34.15	26.94	30.17	32.57
Accepts	2	1	1	1	5	5	12	16	18	14	44	69	103	89	113
% Entering	-	-	-	-	-	45.45	63.16	59.26	56.25	60.87	57.89	62.16	61.66	49.17	53.05
% of Entering Class	0.26	0.12	0.12	0.12	0.62	0.60	1.47	1.94	2.19	1.71	5.13	7.49	10.39	7.81	10.29

- Information not available.

Table 2.9

ENTERING CLASS BY STATE OF RESIDENCE 1958-1972

(Figures are percent of entering class)

YEAR CLASS	1958 1962	1959 1963	1960 1964	1961 1965	1962 1966	1963 1967	1964 1968	1965 1969	1966 1970	1967 1971	1968 1972	1969 1973	1970 1974	1971 1975	1972 1976
Alabama	.92	.87	1.33	.49	.37	.36	.74	.12	.61	.86	.23	.55	.10	.18	.36
Alaska	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24	.00	.00	.00	.09	.00
Arizona	.00	.62	.48	.74	.74	.36	.49	.48	.85	.98	.23	.88	.40	.26	.18
Arkansas	.00	.12	.24	.37	.12	.00	.00	.12	.12	.00	.12	.44	.10	.09	.18
California	2.77	3.25	4.00	3.07	3.84	2.53	2.33	2.91	3.04	4.03	3.03	2.75	5.25	4.57	5.46
Colorado	66	1.00	1.57	.74	1.12	1.21	1.23	.73	.85	1.22	1.17	1.10	.81	.79	.73
Connecticut	3.30	4.87	4.24	5.65	4.71	3.38	5.02	3.75	3.41	4.03	2.80	2.86	3.33	3.86	4.19
Delaware	.40	.87	.36	.00	.50	.84	.49	.61	.85	.98	1.05	.22	.61	.53	1.28
Dist. of Columbia	.79	1.25	1.21	1.60	1.98	1.21	1.59	.97	2.43	1.34	1.52	1.32	1.01	1.40	1.18
Florida	1.32	1.37	2.54	1.84	3.35	2.41	2.45	3.75	2.43	3.79	2.68	3.41	2.52	2.55	2.55
Georgia	.92	1.50	.85	1.72	1.12	.97	.37	1.45	.73	.61	1.40	.44	.40	.53	1.37
Hawaii	.13	.12	.36	.49	.87	.48	.00	.12	.36	.24	.00	.33	.10	.35	.27
Idaho	.00	.00	.12	.00	.00	.12	.00	.24	.00	.00	.12	.00	.00	.09	.00
Illinois	6.08	7.49	5.08	6.27	5.08	6.03	5.64	6.30	5.84	4.03	4.32	4.74	4.24	3.34	2.82
Indiana	.40	.87	1.21	.25	.74	.72	.86	.97	.73	1.34	.82	.99	.81	.35	.64
Iowa	.13	.50	.48	.25	.25	.12	.25	.73	.24	.61	.23	.22	.00	.09	.09
Kansas	.13	.37	.61	.25	.25	.36	.37	.24	.73	1.22	1.40	.99	1.01	.35	.18
Kentucky	1.19	.75	.48	.74	.62	1.21	.61	.73	.36	.49	.12	.44	.50	.53	.82
Louisiana	.26	.87	.48	.37	.37	.60	.61	.48	.24	.73	.23	.00	.71	.53	.55
Maine	.26	.12	.00	.37	.00	.00	.12	.12	.24	.37	.47	.55	.00	.53	.18
Maryland	2.91	3.75	3.03	3.69	3.47	3.98	4.78	5.69	4.14	4.28	4.32	3.30	3.53	4.48	4.01
Massachusetts	3.96	2.50	2.30	4.05	3.84	3.86	3.80	2.06	3.77	3.42	4.78	3.85	3.53	3.34	3.64
Michigan	1.32	1.12	.97	1.23	1.24	1.09	1.35	1.21	.36	1.10	1.52	1.21	.81	.88	.64
Minnesota	.92	1.37	.73	.86	.74	.72	1.84	2.06	1.34	1.34	.93	.55	.91	.61	.55
Mississippi	.13	.25	.24	.37	.12	.24	.00	.36	.00	.12	.23	.11	.00	.18	.09
Missouri	2.77	2.00	1.94	1.84	3.10	3.74	1.96	2.42	1.34	2.08	1.63	1.76	1.92	1.76	1.09
Montana	.13	.37	.00	.00	.25	.00	.00	.00	.00	.12	.23	.00	.00	.09	.09
Nebraska	.40	.37	.61	.49	.25	.60	.12	.24	.24	.24	.47	.33	.40	.35	.27
Nevada	.13	.00	.00	.00	.00	.00	.12	.12	.00	.00	.00	.00	.00	.00	.09
New Hampshire	.40	.12	.48	.49	.37	.48	.12	.85	.36	.61	.47	.55	.20	.53	.27
New Jersey	15.46	14.36	15.50	14.62	12.64	15.80	16.05	11.62	13.50	11.61	15.05	16.63	13.32	15.19	20.13
New Mexico	.66	.37	.00	.37	.62	.12	.25	.24	.12	.24	.12	.22	.20	.61	.27
New York	22.85	17.85	17.92	17.57	17.22	17.01	16.18	14.77	17.03	14.06	12.84	18.83	19.98	25.20	18.49
North Carolina	.92	.37	1.09	.37	.25	.24	.74	.48	.73	1.10	1.05	.66	1.01	.26	.73
North Dakota	.00	.00	.12	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00	.09

Table 2.9 (continued)

YEAR CLASS	1958 1962	1959 1963	1960 1964	1961 1965	1962 1966	1963 1967	1964 1968	1965 1969	1966 1970	1967 1971	1968 1972	1969 1973	1970 1974	1971 1975	1972 1976
Ohio	3.17	5.19	6.30	4.18	5.08	3.98	5.15	4.84	4.01	5.26	5.72	4.74	4.64	3.07	2.37
Oklahoma	.92	.37	1.09	.74	.99	.84	.86	.73	.85	.49	.93	.77	.40	.09	.27
Oregon	.13	.25	.36	.86	.25	.36	1.10	1.09	1.58	.49	.58	.11	.20	.18	.27
Pennsylvania	14.13	10.99	10.53	11.67	11.77	12.06	11.03	11.74	11.56	10.64	12.37	12.67	12.41	10.36	12.20
Rhode Island	.26	.25	.24	.25	.62	.24	.37	.12	.12	.24	.12	.00	.20	.09	.55
South Carolina	.13	.37	.48	.86	.50	.60	.25	.61	.49	1.10	.58	.33	.40	.26	.09
South Dakota	.13	.12	.12	.00	.00	.00	.00	.12	.00	.00	.00	.00	.10	.00	.00
Tennessee	1.32	1.25	1.69	.98	.50	.97	.86	.73	1.09	.73	.70	.99	.81	.70	.46
Texas	1.06	2.25	1.57	2.09	1.73	2.05	1.84	3.03	2.31	2.44	2.57	2.20	3.43	1.49	2.73
Utah	.13	.00	.12	.00	.12	.12	.00	.00	.12	.12	.00	.00	.00	.00	.09
Vermont	.13	.12	.12	.12	.25	.12	.37	.00	.24	.12	.00	.33	.30	.44	.09
Virginia	2.64	2.12	3.15	3.56	3.22	3.26	3.06	3.87	3.41	4.28	4.32	3.30	3.73	3.34	3.10
Washington	.26	.87	.73	1.11	1.24	.72	.98	.85	.36	.86	1.40	1.32	.40	1.14	.73
West Virginia	.40	.25	.36	.25	.50	.00	.37	.36	.73	.37	.12	.77	.30	.18	.18
Wisconsin	.53	.50	.97	.12	.87	.72	.61	1.57	1.70	1.22	1.17	.44	.91	.79	.18
Wyoming	.13	.00	.12	.00	.00	.12	.37	.24	.12	.12	.35	.00	.20	.18	.27
Canada	.79	1.62	.61	.74	1.12	.72	.61	.85	1.82	1.47	1.40	1.43	1.72	.88	.91
Other Foreign	1.06	1.87	.85	1.35	1.12	2.05	1.72	1.45	2.55	2.44	2.10	1.76	2.12	2.37	2.00

Table 2.10

PUBLIC AND PRIVATE SCHOOL ADMISSION STATISTICS,

1958 - 1972

YEAR	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
CLASS	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Completed Applications															
Public Schools	*2185	*2099	*2524	*2380	*2541	*3095	*3234	*3764	*3758	*3646	*3492	*3879	*5478	5303	5456
Private "	*1028	*1181	*1359	*1281	*1387	*1371	*1674	*1700	*1870	*1933	*2019	*2209	*2904	2852	2990
Admits															
Public Schools	771	774	743	745	754	*787	739	*788	*776	*784	*848	*943	1108	1351	1289
Private "	517	501	521	549	508	*428	459	*422	*488	*479	*544	*544	584	754	730
%Admitted															
Public Schools	35.29	36.87	29.44	31.30	29.67	25.43	22.85	20.94	20.65	21.50	24.28	24.31	20.23	25.48	23.63
Private "	50.29	42.42	38.34	42.86	36.63	31.22	27.42	24.82	26.10	24.78	26.94	24.63	20.11	26.44	24.41
Accepts															
Public Schools	389	435	437	423	*451	*490	476	*506	*489	*496	*491	*568	635	713	702
Private "	368	366	389	391	*356	*339	340	*320	*334	*322	*366	*353	356	426	396
% Entering															
Public Schools	50.45	56.20	58.82	56.78	59.81	62.26	64.41	64.21	63.02	63.27	57.90	60.23	57.31	52.78	54.46
Private "	71.18	73.05	74.66	71.22	70.08	79.21	74.07	75.83	68.44	67.22	67.28	64.89	60.96	56.49	54.25
% of Entering Class															
Public Schools	51.39	54.31	52.91	51.97	55.89	59.11	58.33	61.26	59.42	60.64	57.29	61.67	64.08	62.60	63.93
Private "	48.61	45.69	47.09	48.03	44.11	40.89	41.67	38.74	40.58	39.36	42.71	38.33	35.92	37.40	36.07

* Approximate figures, precise information not available

Table 2.11

PRELIMINARY APPLICATIONS, COMPLETED APPLICATIONS,
AND STUDENTS ADMITTED AND ENROLLED

FOR MEN & WOMEN, 1969 - 1972

YEAR CLASS	1969 1973			1970 1974			1971 1975			1972 1976		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Preliminary Applications	7186	535	7721	8649	2768	11417	8726	2906	11632	8061	3199	11260
Completed Applications	5583	505	6088	6328	2054	8382	6137	2018	8155	6082	2364	8446
Initial Admits	1352	135	1487	1346	224	1570	1454	522	1976	1520	473	1993
Initial Accepts	819	102	921	762	133	895	760	332	1092	793	284	1077
Deferred Entrance	2	1	3	14	2	16	21	11	32	23	3	26
% Entering	60.58	75.56	61.94	56.61	59.38	57.01	52.27	63.60	55.26	52.17	60.04	54.04
Alternate Admits	0	0	0	58	64	122	129	0	129	2	24	26
Total Admits	1352	135	1487	1404	288	1692	1583	522	2105	1522	497	2019
% of Applicants Admitted	24.22	26.73	24.43	22.19	14.02	20.19	25.79	25.87	25.81	25.02	21.02	23.90
Total Accepts	819	102	921	813	178	991	807	332	1139	795	303	1098
% Entering	60.58	75.56	61.94	57.91	61.81	58.57	50.98	63.60	54.11	52.23	60.97	54.38
% of Entering Class	88.92	11.08		82.04	17.96		70.85	29.15		72.40	27.60	

Table 2.12

Estimate of Hours Devoted to Bull Sessions with Fellow Students on an Average Day, by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Number of Hours	Total (N=1185)	Freshman (N=304)	Sophomore (N=298)	Junior (N=271)	Senior (N=312)
None	10%	7%	8%	11%	12%
1	23	23	20	22	27
2	30	29	31	32	27
3	18	18	22	17	14
4	9	10	8	10	8
5	5	6	4	4	4
6	3	4	3	2	4
More than 6	3	2	3	2	4
TOTAL	101%	99%	99%	101%	99%

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* Source: Undergraduate Survey, Spring 1972.

Table 2.13

Dining Facility, by Class
Classes of 1972, 1973, 1974, and 1975*

Dining Facility	Total		Freshman		Sophomores		Juniors		Seniors	
	N	%	N	%	N	%	N	%	N	%
Madison Society	217	5	36	3	147	15	25	2	9	1
Commons	1298	33	735	68	526	52	29	3	8	1
Princeton Inn	448	11	215	20	95	9	94	9	44	5
Wilson College	361	9	78	7	156	15	66	6	61	7
Stevenson Hall	164	4	14	1	21	2	75	7	54	6
Club	897	22	—	—	31	3	466	45	400	47
Independent	420	11	3	—	23	2	211	20	183	22
Off Campus	184	5	2	—	14	1	75	7	93	11
TOTAL	3989	100	1083	99	1013	99	1041	99	852	100

* Source: Living, Dining Survey, Spring 1971-72

Table 2.14

Evaluation of Quality of Selected Non-Academic Experiences at Princeton During Previous Years, by Class, Variable Sample, Seniors (Class of 1972) and Sophomores (Class of 1974)*

Quality of Non-Academic Experience	Dining Facility Regularly Used			Facilities For Social Activities		
	Total (N=901)	Senior (N=261)	Sophomore (N=640)	Total (N=913)	Senior (N=293)	Sophomore (N=620)
Excellent	14%	32%	6%	6%	8%	5%
Good	40	41	40	29	39	24
Fair	32	17	38	37	33	39
Poor or Unacceptable	14	10	16	27	20	31
TOTAL	100%	100%	100%	99%	100%	99%

	Opportunities For Social Life			University Housing		
	Total (N=942)	Senior (N=300)	Sophomore (N=642)	Total (N=936)	Senior (N=294)	Sophomore (N=642)
Excellent	6%	11%	4%	9%	12%	7%
Good	25	31	22	42	46	40
Fair	35	35	35	31	27	33
Poor or Unacceptable	34	24	38	18	15	19
TOTAL	100%	101%	99%	100%	100%	99%

* Source: Princeton University Two and Four-Year Evaluation Ratings, 1972.

Table 2.15

Estimate of Hours Devoted to Extracurricular Activities on an Average Day, by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Number of Hours	Total	Freshman	Sophomore	Junior	Senior
	(N=1185)	(N=304)	(N=298)	(N=271)	(N=312)
None	18%	14%	15%	21%	19%
1	16	19	16	14	13
2	23	22	20	27	22
3	17	22	18	15	14
4	11	12	12	10	9
5	6	4	7	4	7
6	4	4	5	3	5
7-8	4	2	5	4	9
More than 8	2	–	2	1	3
TOTAL	101%	99%	100%	99%	101%

* Source: Undergraduate Survey, Spring 1972.

Table 2.16

Percent of Students Who Participate in Various Organized Activities, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

0-10	11-20	21-30	31-40	41-50	51-60
Debating	Action Groups	Community Service			Athletics
Governance					
Cultural Groups	Religious Groups				
Women's Groups					
Music Groups					
Professional Groups					
Communications Groups					

* Source: Undergraduate Survey, Spring 1972

Table 2.17

Self-Report on Satisfaction With Scope of Extracurricular Activities, by Class, Systematic Sample, Classes of 1972, 1973, 1974 and 1975*

	Total (N=963)	Freshman (N=245)	Sophomore (N=240)	Junior (N=216)	Senior (N=262)
Satisfied	78%	69%	78%	76%	86%
Dissatisfied	22	31	22	24	14

*Source: Undergraduate Survey, Spring 1972

Table 2.18

Student Evaluation of the Quality of Departmental Advising on Course Selection for Undergraduate Majors, Four Year Evaluation, Responses of A.B. Candidates, Class of 1972 (N=307)

	Quality of Departmental Advising on Course Selection
Excellent	7%
Good	32
Fair	35
Poor	21
Unacceptable	5

Table 2.19

Student Evaluation of Various Aspects of the Quality of Advising for Underclassmen, Two Year Evaluation, Responses of A.B. Candidates, Class of 1970 (N=585)

	Quality of Academic Advising Offered by the Board of Advisers	Quality of Academic Advising for Underclassmen by Departmental Representatives
	(N=578)	(N=412)
Excellent	4%	6%
Good	21	36
Fair	36	33
Poor	26	17
Unacceptable	13	8

Table 2.20

Counselling Caseload by Number of Student Cases
1971-72

	Class of 1975 (freshmen)		Class of 1974 (sophomores)		Class of 1973 (juniors)		Class of 1972 (seniors)	
	Male	Female	Male	Female	Male	Female	Male	Female
AB	54	48	49	34	80	41	54	17
BSE	3	0	6	0	4	0	3	0
TOTAL	57	48	55	34	84	41	57	17

Table 2.21

Counselling Caseload by Number of Sessions
1971-72

	Class of 1975 (freshmen)		Class of 1974 (sophomores)		Class of 1973 (juniors)		Class of 1972 (seniors)	
	Male	Female	Male	Female	Male	Female	Male	Female
AB	291	279	324	214	364	289	320	103
BSE	6	0	19	0	18	0	11	0
TOTAL	297	279	343	214	382	289	331	103

TABLES TO CHAPTER 3 3.2 THROUGH 3.3

Table 3.2

Number and Percentage of Majors by Department, Division and Sex for Fall 1972-73

	Men		Women		Total	
	#	%	#	%	#	%
HUMANITIES						
Architecture	60	3.8	10	2.6	70	3.6
Art and Archeology	21	1.3	30	7.9	51	2.6
Classics	14	.9	5	1.3	19	1.0
East Asian Studies	9	.6	10	2.6	19	1.0
English	133	8.5	67	17.7	200	10.3
Germanic Languages	7	.4	7	1.9	14	.7
Music	8	.5	3	.8	11	.6
Near Eastern Studies	8	.5	4	1.1	12	.6
Philosophy	39	2.5	3	.8	42	2.2
Religion	58	3.7	3	.8	61	3.1
Romance Languages	19	1.2	19	5.0	38	2.0
Slavic Languages	6	.4	8	2.1	14	.7
TOTAL	382	24.3	169	44.6	551	28.4
SOCIAL SCIENCES						
Anthropology	14	.9	8	2.1	22	1.2
Economics	122	7.8	4	1.1	126	6.5
History	209	13.4	47	12.4	256	13.2
Politics	97	6.2	18	4.8	115	5.9
Sociology	36	2.3	9	2.4	45	2.3
Woodrow Wilson	91	5.8	16	4.2	107	5.5
TOTAL	569	36.4	102	27.0	671	34.6
NATURAL SCIENCES						
Astrophysics	5	.3	—	—	5	.3
Biochemistry	54	3.5	9	2.4	63	3.2
Biology	90	5.8	22	5.8	112	5.8
Chemistry	34	2.2	2	.5	36	1.9
Geology	23	1.5	[illegible]	1.9	30	1.5
Mathematics	48	3.1	6	1.6	54	2.8
Physics	39	2.5	1	.3	40	2.1
Psychology	89	5.7	38	10.1	127	6.5
Statistics	8	.5	5	1.3	13	.7
TOTAL	390	25.1	90	23.9	480	24.8

Table 3.2 (continued)

Number and Percentage of Majors by Department, Division and Sex for Fall 1972-73

	Men		Women		Total	
	#	%	#	%	#	%
ENGINEERING						
Basic Engineering	24	1.5	0	0	24	1.2
Aerospace and Mechanical Sciences	36	2.3	2	.5	38	2.0
Chemical Engineering	36	2.3	1	.3	37	1.9
Civil and Geological Engineering	46	2.9	0	0	46	2.4
Electrical Engineering	61	3.4	0	0	61	3.1
TOTAL	203	12.9	3	.8	206	10.6
Independent Major	18	1.2	14	3.7	32	1.6
GRAND TOTAL	1562	99.9	378	100.0	1940	100.0

Table 3.3

Effects on Departmental Majors and Course Selection of Substituting 400 Women for 400 Men, 100 in Each Class[1]

	Majors			Course Selections[2]		
	200 Men (-)	200 Women (+)	Net Change	400 Men (-)	400 Women (+)	Net Change
HUMANITIES						
Architecture	7	8	1	47	33	-14
Art and Archeology	5	23	18	53	117	64
Classics[3]	1	3	2	42	37	- 5
Creative Arts	0	—	—	12	23	11
East Asian Studies	1	3	2	13	25	12
English	23	33	10	129	190	61
Germanic Languages	1	1	—	34	27	- 7
Humanities	0	—	—	19	32	13
Music	2	0	-2	23	24	1
Near Eastern Studies	1	1	—	8	11	3
Philosophy	8	2	-6	68	47	-21
Religion	8	2	-6	49	42	- 7
Romance Languages	3	6	3	132	171	39
Slavic Languages	0	7	7	8	15	7
Visual Arts	0	—		22	25	3
TOTAL	60	89	29	659	819	160
SOCIAL SCIENCES						
Anthropology	2	2	—	24	30	6
Economics	16	1	-15	108	49	-59
History	30	32	2	118	130	12
History & Philosophy of Science	0	—	—	12	31	19

Table 3.3 (continued)

SOCIAL SCIENCES (continued)	200 Men (-)	200 Women (+)	Net Change	400 Men (-)	400 Women (+)	Net Change
Politics	17	11	-6	98	81	-17
Sociology	9	14	5	54	57	3
Special Programs[3]	2	6	4	18	19	1
Woodrow Wilson	14	10	-4	15	18	3
TOTAL	90	76	-14	447	415	-32
NATURAL SCIENCES						
Astrophysics	1	–	-1	0	0	0
Biochemistry	7	5	-2	15	12	-3
Biology	11	9	-2	53	50	-3
Chemistry	3	0	-3	87	52	-35
Geology	5	2	-3	24	24	0
Mathematics	7	3	-4	124	55	-69[2]
Physics	6	0	-6	76	29	-47[2]
Psychology	9	13	4	102	136	34
Statistics	1	3	2	12	7	-5
TOTAL	50	35	-15	493	365	-128
GRAND TOTAL	200	200	0	1,599	1,599	0

[1] Based on 1971-72 distributions and an average of four course selections per student, and assuming that the number of Engineers in the College remains constant.

[2] This is less reliable since we have assumed that the number of Engineers remains constant but not tried to compute the impact of this assumption on course selections outside of Engineering.

[3] Includes Afro-American Studies, American Civilization, Linguistics, Special Programs in European Civilization, Practice Teaching, Latin American Studies, and Independent Major.

TABLES TO CHAPTER 4 4.1 THROUGH 4.19

Table 4.1

Correspondence Between Early and Later Selection of Major by Class and Division, Systematic Sample, Classes of 1972, 1973, 1974*

	All Students [N = 826]	Seniors [N = 301]	Juniors [N = 246]	Sophomores [N=279]	Humanities [N=304]	Social Science [N=273]	Natural Science [N=141]	Engineer [N=80]
Students reporting that they would have selected the same major at the end of freshman year that they actually chose during sophomore year	44	41	47	45	37	41	59	69
Students reporting that they would have selected a different major at the end of freshman year than their actual and final choice made sophomore year	46	44	41	51	53	53	38	25
Students who later changed their major after original declaration made during sophomore year	10	15	12	4	10	6	3	6

* Source: Undergraduate Survey, Spring 1972

Table 4.2

Estimates by Deans or Chairmen of Leading Graduate and Professional Schools on Prospects for Admission of Princeton Alumni of Three-Year Program: Percentage Answering "Favorable" or "Does Not Matter." *

Question I

> "All other things being equal would the age of a student who graduated in three years -- perhaps one year younger than most applicants from other schools -- influence your admissions decision?"

	Number of Schools	Number Answering "Favorable" or "Does Not Matter"	Percentage
PROFESSIONAL SCHOOLS			
Medical	15	14	
Law	8	6	
Business	7	3	
Architecture	4	3	
Divinity	3	3	
Engineering	2	2	
Education	1	1	
TOTAL	40	32	80%
GRADUATE SCHOOLS			
American Civilization	6	6	
Art	7	5	
Art History	5	4	
Classics	12	10	
Comparative Literature	9	7	
East Asian Studies	5	5	
English	17	14	
Far Eastern Studies	3	2	
German	16	13	
History	16	14	
History of Science	2	2	
Journalism and Communication	3	3	
Latin American Studies	2	2	
Linguistics	12	10	
Music	17	17	
Near Eastern Studies	5	3	
Philosophy	15	13	
Religion	7	7	
Romance Languages	21	19	

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* The "undecided" category is not included in this table.

Table 4.2 (continued)

	Number of Schools	Number Answering "Favorable" or "Does Not Matter"	Percentage
Slavic Languages	10	8	
South Asian Studies	2	2	
Speech and Drama	5	4	
SUB-TOTAL (Humanities)	197	170	86%
Anthropology	13	11	
Demography	2	2	
Economics	14	14	
Geography	5	5	
International Relations	2	2	
Political Economics	1	1	
Political Science	16	14	
Psychology	15	13	
Sociology	16	15	
Urban Planning	2	1	
SUB-TOTAL (Social Sciences)	86	78	92%
Agronomy	2	2	
Anatomy	7	5	
Animal Science	3	2	
Astronomy	11	9	
Biochemistry	11	9	
Biology	14	14	
Biophysics	2	2	
Chemistry	16	16	
Environmental Science	3	3	
Earth and Planetary Science	4	4	
Geology	11	8	
Mathematics	16	16	
Mathematics - applied	1	1	
Microbiology	9	8	
Pharmacology	4	3	
Physics	16	15	
Physics - applied	1	1	
Physiology	8	8	
Statistics	7	7	
SUB-TOTAL (Natural Sciences)	146	133	91%
GRADUATE SCHOOLS			
TOTAL	429	381	89%

Table 4.2 (continued)

Estimates by Deans or Chairmen of Leading Graduate and Professional Schools on Prospects for Admission of Princeton Alumni of Three-Year Program: Percentage Answering "Favorable" or "Does Not Matter." *

Question II

> "On the basis of your best guess do you believe that a Princeton alumnus who completed a three-year degree program would be eligible for admission for study in your Department or School?"

	Number of Schools	Number Answering "Favorable" or "Does Not Matter"	Percentage
PROFESSIONAL SCHOOLS			
Medical	15	15	
Law	8	8	
Business	7	7	
Architecture	4	4	
Divinity	3	3	
Engineering	2	1	
Education	1	1	
TOTAL	40	39	98%
GRADUATE SCHOOLS			
American Civilization	6	6	
Art	9	8	
Art History	7	7	
Classics	10	9	
Comparative Literature	9	8	
East Asian Studies	5	5	
English	15	15	
Far Eastern Studies	3	3	
German	14	13	
History	14	14	
History of Science	2	2	
Journalism and Communication	3	3	
Latin American Studies	1	1	
Linguistics	7	7	
Music	15	15	
Near Eastern Studies	4	4	
Philosophy	15	15	
Religion	7	7	
Romance Languages	20	20	

* The "undecided" category is not included in this table.

Table 4.2 (continued)

	Number of Schools	Number Answering "Favorable" or "Does Not Matter"	Percentage
Slavic Languages	8	8	
South Asian Studies	1	1	
Speech and Drama	5	5	
SUB-TOTAL (Humanities)	179	176	98%
Anthropology	13	13	
Demography	1	1	
Economics	14	14	
Geography	5	5	
International Relations	2	2	
Political Economics	1	1	
Political Science	15	15	
Psychology	13	13	
Sociology	13	13	
Urban Planning	2	2	
SUB-TOTAL (Social Sciences)	79	79	100%
Agronomy	2	1	
Anatomy	7	7	
Animal Science	3	2	
Astronomy	10	10	
Biochemistry	11	11	
Biology	14	14	
Biophysics	1	1	
Chemistry	15	14	
Environmental Science	2	2	
Earth and Planetary Science	3	3	
Geology	10	8	
Mathematics	16	16	
Mathematics - applied	2	2	
Microbiology	9	9	
Pharmacology	3	3	
Physics	16	16	
Physics - applied	1	1	
Physiology	8	8	
Statistics	5	5	
SUB-TOTAL (Natural Sciences)	138	134	97%
GRADUATE SCHOOLS			
TOTAL	396	389	98%

Table 4.2 (continued)

Estimates by Deans or Chairmen of Leading Graduate and Professional Schools on Prospects for Admission of Princeton Alumni of Three-Year Program: Percentage Answering "Favorable" or "Does Not Matter."*

Question III

> All other things being equal how would you compare the chances of admission of two Princeton alumni if one completed a three-year program and the other completed a standard four-year program?"

	Number of Schools	Number Answering "Favorable" or "Does Not Matter"	Percentages
PROFESSIONAL SCHOOLS			
Medical	15	13	
Law	8	5	
Business	7	4	
Architecture	4	3	
Divinity	3	2	
Engineering	2	0	
Education	1	1	
TOTAL	40	28	70%
GRADUATE SCHOOLS			
American Civilization	6	5	
Art	8	6	
Art History	7	3	
Classics	14	3	
Comparative Literature	10	7	
East Asian Studies	5	3	
English	17	9	
Far Eastern Studies	3	2	
German	16	10	
History	15	10	
History of Science	2	1	
Journalism and Communication	3	2	
Latin American Studies	2	1	
Linguistics	12	8	
Music	17	13	
Near Eastern Studies	5	3	
Philosophy	15	7	
Religion	5	4	
Romance Languages	20	9	

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* The "undecided" category is not included in this table.

Table 4.2 (continued)

	Number of Schools	Number Answering "Favorable" or "Does Not Matter"	Percentage
Slavic Languages	11	3	
South Asian Studies	2	1	
Speech and Drama	5	3	
SUB-TOTAL (Humanities)	200	113	56%
Anthropology	13	11	
Demography	2	2	
Economics	14	11	
Geography	5	1	
International Relations	2	1	
Political Economics	1	1	
Political Science	16	10	
Psychology	16	11	
Sociology	16	14	
Urban Planning	2	2	
SUB-TOTAL (Social Sciences)	87	64	74%
Agronomy	2	1	
Anatomy	7	2	
Animal Science	3	1	
Astronomy	11	4	
Biochemistry	11	7	
Biology	15	10	
Biophysics	3	2	
Chemistry	16	10	
Environmental Science	3	2	
Earth and Planetary Science	4	2	
Geology	11	2	
Mathematics	16	15	
Mathematics - applied	2	2	
Microbiology	9	6	
Pharmacology	4	2	
Physics	16	12	
Physics - applied	1	0	
Physiology	8	5	
Statistics	7	5	
SUB-TOTAL (Natural Sciences)	149	90	60%
GRADUATE SCHOOLS			
TOTAL	436	267	61%

Table 4.3

REACTIONS OF STUDENTS WHO TOOK ADVANCED STANDING

CLASS OF 1973 (N = 11)

Year Entered Princeton	1969	11
Age	18	1
	19	1
	20	5
	21	3
	22	1
Major	Humanities	4
	Social Sciences	4
	Natural Sciences	2
	Engineering	1
SAT-Verbal score	Under 600	1
	601-650	1
	651-700	1
	701-750	5
	751-800	1
	Don't Remember	2
SAT-Mathematics score	651-700	1
	701-750	3
	751-800	5
	Don't Remember	2
Financial Aid	Yes	4
	No	7
Future Educational Plans	No further schooling	1
	Professional school	8
	Graduate work	2
	Other	-
Intended Occupational Choice*	Academic career	2
	Professional career	5
	Work career	1
	Other (politics)	3

Table 4.3 (continued)

REACTIONS OF STUDENTS WHO TOOK ADVANCED STANDING

CLASS OF 1973 (N = 11)

What range of considerations led you to decide to graduate in three years?

Response	Number of Respondents
Desire to begin educational or occupational career earlier	7
Financial savings	5
Educational boredom	3
Eager to major	2
Reluctance to waste time	1
Divert scholarship funds to other students	1
Poor judgement	1
To marry and have children earlier	1
Dislike of Princeton	1

In your opinion what are the advantages and disadvantages of completing your program at Princeton in three years?

Response	Number of Respondents
a. Advantages	
Opportunity to make efficient use of time	6
Financial savings	5
Educationally challenging	3
Begin educational or occupational career earlier	2
Divert scholarship fund to other students	1
To marry and have children earlier	1
No response	1
b. Disadvantages	
Insufficient exposure to a variety of courses	4
Not enough time to enjoy the total Princeton experience	1
Not enough time for personal growth and reflection	4
Too much pressure	3
No disadvantages	2
Many disadvantages	1

If you had it to do over again, would you choose to graduate in three years or in four years?

Response	Number of Respondents
Four years	2
Three years	9

Table 4.4

REACTIONS OF STUDENTS WHO TOOK ADVANCED STANDING

CLASS OF 1968-1971 (N = 30)

Class	1971	6
	1970	5
	1969	8
	1968	5
	1967	6
Age	21	4
	22	6
	23	5
	24	5
	25	5
	26	3
	27	1
	30	1
Major	Humanities	8
	Social Sciences	11
	Natural Sciences	6
	Engineering	5
SAT-Verbal score	601-650	4
	651-700	7
	701-750	6
	751-800	4
	Don't remember	9
SAT-Mathematics score	701-750	8
	751-800	13
	Don't remember	9
Financial Aid	Yes	4
	No	[illegible]
Educational career since leaving Princeton	No further	2
	Professional school	17
	Graduate work	11
	Other	—
Current occupation	Student	10
	Academic career	6
	Professional career	4
	Work career	6
	Other	1
	No response	3

Table 4.4 (continued)

REACTIONS OF STUDENTS WHO TOOK ADVANCED STANDING (CONTINUED)

CLASS OF 1968-1971 (N = 30)

What range of considerations led you to decide to graduate in three years?

Response	Number of Respondents
Desire to begin educational or occupational career earlier	16
Excellent secondary school preparation	13
Financial savings	9
Dislike of Princeton	7
Prestige of "Advanced Standing"	4
Eager to major	3
Reluctance to waste time	3
Educational boredom	2
Dislike of lower level pedagogical methods	2
Pressure from friends	1
Personal	1
Keep open the option of graduating in three years	1
Draft	1

In your opinion what are the advantages and disadvantages of completing your program at Princeton in three years?

Response	Number of Respondents
a. Advantages	
Begin educational or occupational career earlier	17
Financial savings	11
Opportunity to make efficient use of time	8
Educationally challenging	7
To be at Princeton one less year	5
Greater flexibility in academic and social options	3
Quicker maturation	1
Opportunity to take a year off without getting behind classmates	1
b. Disadvantages	
Insufficient exposure to a variety of courses	15
Unsatisfactory social life resulting from loss of class identity	4
Too much pressure	5
Not enough time to enjoy the total Princeton experience	4
Not enough time for a satisfactory social life	2
Forced to specialize too soon	2
Not enough time for personal growth and reflection	1
None	3

If you had it to do over again, would you choose to graduate in three years or in four years?

Response	Number of Respondents
Four years	3
Three years	22
Undecided	4
No response	1

Table 4.5

REACTIONS OF STUDENTS WHO TOOK ADVANCED PLACEMENT TESTS BUT DID NOT APPLY FOR ADVANCED STANDING

CLASSES OF 1975 and 1976 (N = 76)

Year Entered Princeton	1971	73
	1972	1
	No response	2
Age	17	11
	18	50
	19	11
	No response	4
Major	Humanities	13
	Social Sciences	9
	Natural Sciences	18
	Undecided	36
SAT-Verbal score	601-650	9
	651-700	11
	701-750	33
	751-800	19
	Don't Remember	4
SAT-Mathematics score	Below 601	3
	601-650	4
	651-700	14
	701-750	22
	751-800	29
	Don't Remember	4
Financial Aid	Yes	25
	No	51
Future Educational Plans	No further schooling	3
	Professional school	30
	Graduate work	22
	Other	21
Intended Occupational Choice?	Academic career	15
	Professional career	34
	Work career	3
	Other	24

Table 4.5 (continued)

REACTIONS OF STUDENTS WHO TOOK ADVANCED PLACEMENT TESTS BUT DID NOT APPLY FOR ADVANCED STANDING

CLASSES OF 1975 and 1976 (N = 76)

What range of considerations led you to refrain from applying for advanced standing even though you were eligible to do so?

Response	Number of Respondents
Desire to take interesting undergraduate and/or graduate courses	43
Uncertain about major	35
Wished greater opportunity to enjoy total experience	17
Not in a hurry to graduate	14
Too young at time of graduation	9
Major requires four calender years	9
Three year program involves too much pressure	8
Wanted time for personal growth and reflection	7
Desire to take advantage of social life	5
Desire to participate in special programs	5
Adjusting to college wasted the Freshman year	3
Difficult process of applying for advanced standing	3
"Personal"	2
Fear of rejection by graduate or professional school	2
Loss of identification with entering class	1

If you had it to do over again, would you choose to graduate in three years or in four years?

Response	Number of Respondents
Four years	56
Three years	4
Undecided	14
No response	2

Table 4.6

REACTIONS OF STUDENTS WHO APPLIED FOR ADVANCED STANDING AND RETURNED TO THEIR ORIGINAL CLASS (N = 9)

CLASSES OF 1972, 1973, 1974

Year entered Princeton	1970	3
	1969	3
	1968	2
	No response	1
Age	19	3
	20	1
	21	3
	22	1
	No response	1
Major	Humanities	3
	Social Sciences	3
	Natural Sciences	3
SAT-Verbal score	Below 600	1
	601-650	1
	651-700	2
	701-750	3
	751-800	2
SAT-Mathematics score	601-650	1
	651-700	1
	701-750	3
	751-800	4
Financial aid	Yes	4
	No	5
Future educational plans	No further schooling	1
	Professional school	3
	Graduate school	4
	Other	1
Intended occupational choice	Academic career	4
	Professional career	3
	Work career	1
	Other	1

Table 4.6 (continued)

REACTIONS OF STUDENTS WHO APPLIED FOR ADVANCED STANDING (CONTINUED) AND RETURNED TO THEIR ORIGINAL CLASS (N = 9)

What range of considerations originally led you to apply for advanced standing?

Response	Number of Respondents
Desire to begin educational or occupational career earlier	6
Eager to major	5
Financial savings	3
Reluctance to waste time	3
Pressure from friends	2
Educational boredom	1
Prestige of "Advanced Standing"	1
Keep open the option of graduating in three years	1
Better room and choice of eating arrangement	1

What factors ultimately influenced you to decide to graduate in four years instead of three?

Response	Number of Respondents
Desire to take interesting undergraduate and/or graduate courses	3
Enjoyment of the total Princeton experience	3
Desire to participate in a special program	2
Fear of the military draft	2
"Not in a hurry to graduate"	2
Too much pressure	1
Not enough time for personal growth and reflection	1
Desire to take advantage of social life	1
Loss of identification with entering class	1
Fear of rejection by graduate or professional school	1
"Personal"	1

If you had it to do over again, would you choose to graduate in three years or in four years?

Response	Number of Respondents
Four years	8
Three years	1

Table 4.7

Self-Report of Activities Done For A Month Or More During The Summer Of 1971, by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Activities	Total (N=1184)	Freshman (N=304)	Sophomore (N=298)	Junior (N=270)	Senior (N=312)
Work For Pay	78%	76%	78%	79%	79%
Travel	24	22	21	25	28
Volunteer Community Work	5	6	6	4	3
Other	16	12	12	20	19
TOTAL**	123	116	117	128	129

* Source: Undergraduate Survey, Spring 1972.

** Totals sum to over 100% because multiple responses were permitted.

Table 4.8

Selected Events and Dates, First Term Academic Schedule
Which Includes A One-Week Recess and A Ten-Day Reading Period
Academic Year 1973-74

Selected Events	First Term
Orientation Period Begins	Tuesday, August 28
Orientation Period Ends	Saturday, September 1
Registration Period Begins	Friday, August 31
Registration Period Ends	Saturday, September 1
Classes Begin	Monday, September 3
Midterm Week	Monday, October 8
Fall Recess Begins	Sunday, October 14
Fall Recess Ends	Saturday, October 21
Thanksgiving Day Recess	Thursday, November 22
Classes End	Saturday, December 1
Reading Period Begins	Sunday, December 2
Reading Period Ends	Tuesday, December 11
Final Examinations Begin	Wednesday, December 12
Final Examinations End	Friday, December 21
Winter Recess Begins	Saturday, December 22
Winter Recess Ends	Sunday, January 20

Table 4.9

Selected Events and Dates, First Term Academic Schedule
Which Includes A One-Week Recess and A Seventeen Day Reading Period

Academic Year 1973-74

Selected Events	First Term
Freshman Orientation Period Begins	Tuesday, August 21
Freshman Orientation Period Ends	Saturday, August 25
Registration Period Begins	Friday, August 24
Registration Period Ends	Saturday, August 25
Classes Begin	Monday, August 27
Midterm Week	Monday, October 1
Fall Recess Begins	Saturday, October 6 P.M.
Fall Recess Ends	Sunday, October 14
Thanksgiving Day Recess	Thursday, November 22
Classes End	Saturday, November 24
Reading Period Begins	Sunday, November 25
Reading Period Ends	Tuesday, December 11
Final Examinations Begin	Wednesday, December 12
Final Examinations End	Friday, December 21
Winter Recess Begins	Saturday, December 22
Winter Recess Ends	Sunday, January 20

Table 4.10

Selected Events and Dates, First Term Academic Schedule
Which Includes No Recess and A Ten-Day Reading Period
Academic Year 1973-74

Selected Events	First Term
Freshman Orientation Begins	Tuesday, September 4
Freshman Orientation Ends	Saturday, September 8
Registration Period Begins	Friday, September 7
Registration Period Ends	Saturday, September 8
Classes Begin	Monday, September 10
Midterm Week	Monday, October 15
Thanksgiving Day Recess	Thursday, November 22
Classes End	Saturday, December 1
Reading Period Begins	Sunday, December 2
Reading Period Ends	Tuesday, December 11
Final Examinations Begin	Wednesday, December 12
Final Examinations End	Friday, December 21
Winter Recess Begins	Saturday, December 22
Winter Recess Ends	Sunday, January 20

Table 4.11

Selected Events and Dates, First Term Academic Schedule
Which Includes No Recess and A Seventeen-Day Reading Period
Academic Year 1973-74

Selected Events	First Term
Freshman Orientation Begins	Tuesday, August 28
Freshman Orientation Ends	Saturday, September 1
Registration Period Begins	Friday, August 31
Registration Period Ends	Saturday, September 1
Classes Begin	Monday, September 3
Midterm Week	Monday, October 8
Thanksgiving Day Recess	Thursday, November 22
Classes End	Saturday, November 24
Reading Period Begins	Sunday, November 25
Reading Period Ends	Tuesday, December 11
Final Examinations Begin	Wednesday, December 12
Final Examinations End	Friday, December 21
Winter Recess Begins	Saturday, December 22
Winter Recess Ends	Sunday, January 20

Table 4.12

Evaluation of Deferred Admission to University by Students Who Interrupted Their Studies Between Secondary School Graduation and Entrance to Princeton, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Evaluation	Total (N=48)	1972 (N=15)	1973 (N=12)	1974 (N=10)	1975 (N=11)
Beneficial	65%	67%	58%	50%	82%
Not Beneficial	27	20	42	30	18
Unsure	8	13	--	20	--
TOTAL	100%	100%	100%	100%	100%

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* Source: Undergraduate Survey, Spring 1972.

Table 4.13

Evaluation of Deferred Admission to University by Students Who Did Not Interrupt Their Studies Between Secondary School Graduation and Entrance to Princeton, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Evaluation	Total (N=1120)	1972 (N=292)	1973 (N=251)	1974 (N=287)	1975 (N=290)
Beneficial	28%	30%	33%	33%	17%
Not Beneficial	54	55	51	51	57
Unsure	18	15	16	16	26
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972

Table 4.14

Self-Report on Preference for Taking a Leave From Campus Next Year Assuming Complete Freedom of Choice, by Class, Systematic Sample, Classes of 1973, 1974 and 1975*

	Total (N=845)	Freshman (N=293)	Sophomore (N=293)	Junior (N=247)
Yes	27%	14%	39%	26%
No	73	86	61	74

* Source: Undergraduate Survey, Spring 1972

Table 4.15

Self - Estimate of Academic Readiness for College
Gifted High School Seniors and
Princeton Classes of 1972, 1973, 1974, and 1975

ETS Survey of Gifted High School Seniors:

"Do you think that you were academically ready for college by the end of your junior year?"

	All High School Seniors (N= 2840)
Yes	57%
No	26
Don't Know	17

Princeton Undergraduate Survey, Spring 1972:

"Do you believe that you could have handled the academic aspects of the Princeton experience if you had skipped your senior year of secondary school and come to Princeton a year earlier?"

Readiness to do Academic Work	Total (N=1174)	Freshman (N=300)	Sophomore (N=295)	Junior (N=267)	Senior (N=312)
Ready	54%	58%	57%	50%	48%
Not Ready	34	28	34	37	38
Unsure	12	14	9	13	14
TOTAL	100%	100%	100%	100%	100%

Table 4.16

Self-Estimate of Emotional Readiness for College
Gifted High School Seniors and
Princeton Classes of 1972, 1973, 1974, and 1975

ETS Survey of Gifted High School Seniors:

"Do you think you were emotionally ready for college by the end of your junior year?"

	All High School Seniors (N=2840)
Yes	32%
No	52
Don't Know	16

Princeton Undergraduate Survey, Spring 1972:

"Do you believe that you would have been ready for the non-academic aspects of the Princeton experience if you had skipped the senior year of secondary school and come to Princeton a year earlier?"

Readiness for Non-Academic Activities	Total (N=1172)	Freshman (N=301)	Sophomore (N=294)	Junior (N=267)	Senior (N=310)
Ready	42%	42%	45%	41%	40%
Not Ready	42	41	37	45	46
Unsure	16	17	18	14	14
TOTAL	100%	100%	100%	100%	100%

Table 4.17

Advanced Standing by Graduation Status
Classes of 1966 through 1972

Advanced Standing	Number of Students	Graduated in 3 years	Did not Graduate in 3 years
Applied for Advanced Standing	266	17.3	82.7
Granted Advanced Standing	85	54.1	45.9

Note: Transfer students are not included and data on advanced standing are not complete for some classes. The total number of students included in the table from which these data are drawn is 4,196 as compared to a total enrollment of 5,976 from the classes of 1966 through 1972.

Table 4.18

UNDERGRADUATES ENROLLED IN GRADUATE COURSES AND GRADUATES ENROLLED IN UNDERGRADUATE COURSES: 1971-72

	Undergraduates Enrolled in Graduate Courses		Graduates Enrolled in Undergraduate Courses	
	Number of Courses	Number of Students	Number of Courses	Number of Students
American Civ.	-	-	2	3
Anthropology	8	15	5	10
Architecture	8	13	6	43
Arabic	2	4	3	9
Art	1	2	15	70
Astronomy	4	4	-	-
Biology	9	16	10	32
Biochemistry	9	28	2	7
Chemistry	8	12	6	38
Chinese	-	-	10	19
Classics	1	1	5	12
East Asian Studies	6	11	-	-
Economics	15	24	8	9
AMS	10	11	6	10
Chem. Eng.	5	6	1	2
C & G Eng.	6	8	9	16
Elect. Eng.	12	25	14	53
English	5	5	5	6
French	2	2	2	6
Geology	7	9	12	19
German	4	9	2	3
Greek	-	-	2	4
Hebrew	2	2	-	-
History	10	20	16	34
H & P of Science	1	1	2	5
Italian	-	-	2	6
Japanese	-	-	7	11
Latin	-	-	4	4
Math	11	13	19	57
Linguistics	2	5	1	3
Music	6	18	8	14
Near Eastern Studies	5	7	4	16
Persian	2	2	3	10
Philosophy	8	12	13	36
Physics	20	34	6	8
Politics	7	13	3	3
Psychology	11	43	10	14
Religion	3	6	6	12
Russian	4	15	2	7
Sanskrit	-	-	6	2
Sociology	4	7	2	2
Statistics	4	4	4	5
WWS	46	91	-	-
Visual Arts	-	-	5	6
TOTAL	268	498	248	626

Table 4.19

Impact of Proposed Leave of Absence and Advanced Placement Policies on Stability of Simulated On-Campus and Off-Campus Populations Over a Forty-Year Period

	Beginning of Fall Semester Population		
	4,000	4,400	4,800
Policy's Effect On the Size Stability of the Entering Class	To maintain a constant beginning Fall semester population of 4,000, the size of the entering class would average 991 students and vary between a range of 919-1,025 students.	To maintain a constant beginning Fall semester population of 4,400, the size of the entering class would average 1,087 students and vary between a range of 1,033-1,125 students.	To maintain a constant beginning Fall semester population of 4,800, the size of the entering class would average 1,183 students and vary between 1,145-1,225 students.
Policy's Effect On the Size Stability of the Annual Number of Transfer Students Admitted	The number of transfers admitted annually would remain at about 70 students three quarters of the time. In the other years, the number of transfers would vary from 70-100.	The number of transfers admitted annually would remain almost perfectly constant at 85 with a variance of less than 20 students in one or two years.	The number of transfers admitted annually would remain almost perfectly constant at 100 with a variance of under a dozen students in one or two years.
Policy's Effect On the Campus Population During Spring Semester	The Spring semester of each year would average 65 students less than the Fall semester (i.e. 3,935 with the worst case being 94 students below the Fall semester (i.e. 3,906).	The Spring semester of each year would average 77 students less than the Fall semester (i.e. 4,323) with the worst case being 107 students below the Fall semester (i.e. 4,293).	The Spring semester of each year would average 77 students less than the Fall semester (i.e.) 4,723) with the worst case being 103 students below the Fall semester (i.e. 4,693).
Policy's Effect On Total University Population (All Students on Campus plus All Students on Leave) During the Fall Term	The total University population would vary between 4,244 and 4,199 students, with an average of 4,221 students.	The total University population would vary between 4,663 and 4,621 students, with an average of 4,644 students.	The total University population would vary between 5,081 and 5,029 students, with an average of 5,069 students.

TABLES TO CHAPTER 5   5.1 THROUGH 5.18

Table 5.1

NUMBER OF UNDERGRADUATE COURSES OFFERED BY DEPARTMENTS AND PROGRAMS

Academic Year 1962-63 through 1971-72

Department or Program	Total Course Offerings	African Studies	Afro-American Studies	American Civilization	Anthropology	Architecture and Urban Planning	Art and Archaeology	Astrophysical Science[a]	Biochemical Sciences	Biology	Chemistry	Classics	Creative Writing and Performing Arts
Net Course Increase or Decrease for First and Last Year Recorded		0	4	0	12	6	6	-2	2	2	-9	-5	—
1962-63	636			3		10	17	5		14	24	30	
1963-64	622			3		10	18	4		14	24	27	
1964-65	652			3		10	18	4		15	24	25	
1965-66	657			3	1	8	19	4		14	23	26	
1966-67	677	1		3	6	9	19	4		15	22	28	
1967-68	700	0		3	7	11	22	5		15	22	27	
1968-69	706[c]	0		3	9	14	18	4		17	22	19	
1969-70	730[d]	0	2	2	9	14	19	5	1	15	21	27	
1970-71	764[e]	1	5	3	11	14½	21	3	3	18	19	26	
1971-72	723[f]	1	6	3	13	16	23	3	3	16	15	25	11[b]

[a] Formerly Astronomy
[b] Includes one no-credit Creative Arts course
[c] Includes eight no-credit Creative Arts courses
[d] Includes six no-credit Creative Arts courses
[e] Includes twelve no-credit Creative Arts courses
[f] Includes ten no-credit Creative Arts courses

Table 5.1 (continued)

UNDERGRADUATE COURSES OFFERED (continued)
1962-63 THROUGH 1971-72

Department or Program	East Asian Studies	Program in East Asian Studies	Economics	Engineering (all courses)	English	European Civilization	Geological and Geophysical Sciences[a]	Germanic Languages and Literature	History	History and Philosophy of Science	Humanistic Studies	Latin American Studies	Mathematics	Music
Net Course Increase or Decrease for First and Last Year Recorded	0	0	1	13	10	0	0	0	0	5	3	2	1	-1
1962-63	—	—	20	98	28	2	16	19	30	—	7	—	38	19
1963-64	—	—	24	89	28	2	13	17	24	—	7	—	34	16
1964-65	—	0	23	100	30	2	13	19	29	—	8	—	39	15
1965-66	—	0	21	95	32	2	16	19	29	—	9	—	41	16
1966-67	—	1	22	103	29	3	15	19	28	—	9	—	34	19
1967-68	—	1	22	99	32	2	15	18	37	—	9	0	36	17
1968-69	—	1	24	92	32	2	13	19	39	0	10	0	37	17
1969-70	37½	0	21	110	34	1	13	20	37	0	11	1	37	16
1970-71	34½	0	23	111½	36	2	13	20	41	0	14	0	39	18
1971-72	37½	0	21	111	38	2	16	19	30	5	10	2	39	18

[a] Formerly Geology

Table 5.1 (continued)

UNDERGRADUATE COURSES OFFERED (continued)
1962-63 THROUGH 1971-72

Department or Program	Naval Science	Near Eastern Studies	Program in Near Eastern Studies	Philosophy	Physics	Politics	Psychology	Religion	Romance Languages and Literature	Section of European Languages, Literature and Civilization	Slavic Languages and Literature	Sociology[a]	Statistics	Teacher Preparation Program
Net Course Increase or Decrease for First and Last Year Recorded	-5	4	0	1½	-4	1	-½	2	1½	8	-6	2	6½	0
1962-63	8	—	0	20	26	25	20	18	43	10	16	16	—	—
1963-64	8	—	0	19	28	26	20	18	48	12	17	13	—	—
1964-65	9	—	0	21	26	25	19	20	47	10	16	14	—	—
1965-66	9	—	0	20	26	26	21	20	48	10	18	12	—	—
1966-67	9	—	0	20	24	27	20	20	45	8	19	13	7	—
1967-68	9	—	0	21	22	27	21	21	47	11	16	14	14	—
1968-69	10	—	1	20½	20	25	17½	19	47	13	16	14	14½	—
1969-70	9	18	0	19½	24	25	21	21	47	15	14	18	16	—
1970-71	8	22	0	20½	24	27	18½	21	47	11	13	20	15½	2
1971-72	3	22	0	21½	22	26	19½	20	44½	18	10	18	13½	2

[a] Formerly Sociology and Anthropology

Table 5.1 (continued)

UNDERGRADUATE COURSES OFFERED (continued)

1962-63 THROUGH 1971-72

Department or Program	Visual Arts	Woodrow Wilson School	Physical Education	Air Science (AFROTC)[a]	Military Science[a]	Oriental Studies[a]	Creative Arts[a]	Science in Human Affairs[a]	Student-Initiated Seminars
Net Course Increase or Decrease for First and Last Year Recorded	–	3	0	-1	-1	+22	+22	–	+ 9
1962-63	–	6	2	5	8	35	7	–	–
1963-64	–	6	2	5	8	41	8	–	–
1964-65	–	7	2	6	8	44	10[e]	–	–
1965-66	–	6	2	6	8	44	11	–	–
1966-67	–	6	2	4	8	50	11	1	–
1967-68	–	5	2	3	8	56	12	–	–
1968-69	–	4	2	4	8	57	20[f]	–	12[i]
1969-70	–	6	2	4	8	–[b]	19[g]	–	15[i]
1970-71	–	5	2	4	7	–	29[h]	–	21[i]
1971-72	24½[d]	9	2	–	–	–	–[c]	–	35[i]

[a] Departments or Programs not listed in Spring 1972 Undergraduate Courses Offered Booklet
[b] Now Department of East Asian Studies and Department of Near Eastern Studies
[c] Now Department of Creative Writing and Performing Arts and Department of Visual Studies
[d] Includes nine no-credit Creative Arts Courses
[e] Includes one no-credit Creative Arts Course
[f] Includes eight no-credit Creative Arts Courses
[g] Includes six no-credit Creative Arts Courses
[h] Includes twelve no-credit Creative Arts Courses
[i] Not included in totals

Table 5.1 (continued)

NOTE:

Some courses are listed in the catalogue under more than one category for the following reasons: (1) faculty from two departments teach the course, (2) the department or program is cross-disciplinary in nature. A course which is cross-listed under a single department or program was included in the offerings of that department or program. Courses which were cross-listed under two departments or programs were counted as one-half course offerings for each department or program.

Source: Courses Offered, Office of the Registrar

Table 5.2

Language Requirement at Selected Colleges and Universities

I. Ivy League Schools

School	Language Requirement	CEEB Score	Academic[A] Time	Other
Brown University	No	-----	--------	-----
Columbia University	Yes	-----	--------	Passing or achieving the equivalent of the last term of a 16 pt. program (as defined).
Cornell University	Yes	-----	--------	"Qualification" in two languages or "proficiency" in one (advanced course).
Dartmouth College	Yes	-----	1 year	-----
Harvard University	Yes	560	1 year	3 on Advanced Placement
Pennsylvania University	Yes	-----	2 years	-----
Princeton University	Yes	700	2 years	4 on Advanced Placement
Yale College	No	-----	--------	Strongly Recommended in Guidelines.

[A] Assumed no previous training in the language

Table 5.2 (continued)

Language Requirement at Selected Colleges and Universities
II Selected Major Universities

School	Language Requirement	Nature of Requirements[A] CEEB Score	Academic Time	Other
Brandeis University	Yes	----	2 years	3 on Advanced Placement
University of California, Berkeley	Yes	----	------	No details available
University of California, Los Angeles	Yes	----	5 quarters	-----
Carnegie-Mellon Univ.	No	----	-------	-----
Western Reserve of Case Western Reserve Univ.	Yes	----	2 years	-----
Colgate University	Yes	----	1 or 2 years (depends on major)	-----
Duke University	Yes	----	2 years	-----
University of Illinois, Urbana	Yes	----	2 years	-----
Michigan State Univ.	Yes	----	1 or 2 years (most Colleges)	-----
University of Minnesota	Yes	----	6 quarters	-----
University of North Carolina, Chapel Hill	Yes	----	2 years	-----
Northwestern University	Yes	----	2 years	-----
Rutgers University	Yes	----	2 years	-----
University of Southern Illinois, Carbondale	No	----	-------	-----
Stanford University	No	----	-------	-----
Vanderbilt University	Yes	----	2 years	-----
University of Virginia	Yes	700	2 years	-----
Washington & Lee Univ.	Optional	----	-------	Optional under distribution requirements
University of Wisconsin, Madison	Yes	----	2 years	14 credits or equivalent

[A] Assumed no previous training in language

Table 5.2 (continued)

Language Requirement at Selected Colleges and Universities
III. Selected Liberal Arts Colleges

	Nature of Requirements			
School	Language Requirement	CEEB Score	Academic Time[A]	Other
Bernard College	Yes	----	2 years	-----
Bennington College	No	----	-------	-----
Bowdoin College	No	----	-------	-----
Bryn Mawr College*	Yes	590	No details available	4 on Advanced Placement
Dickinson College	Yes	----	1 year	-----
Douglass College	No+	----	-------	-----
Goucher College	Yes	----	3 semesters	-----
MacAlester College	No	----	-------	-----
Mount Holyoke College	Yes	----	1 year	-----
Oberlin College	Yes	----	2 years	-----
Sarah Lawrence College	No	----	-------	-----
Skidmore College	No	----	-------	-----
Smith College	No	----	-------	-----
Swarthmore College	No	----	-------	-----
Vassar College	No	----	-------	-----
Wake Forest College	Yes	----	2 years	-----
Wellesley College	Yes	610	2 years	-----
College of William and Mary	Yes	----	2 years	-----

[A] Assumed no previous training in the language

[*] Two languages required or one language and mathematics

[+] Language requirement abolished after Class of 1972

Table 5.3

Means of Complying With the Language Requirement
Class of 1972
(N=740)[a]

		% of class
I.	Exempted from the requirement Engineers (12%) University Scholars (4%) Students granted language waivers (5%)	21%
II.	Demonstrated proficiency[b] at entrance	14
III.	Demonstrated proficiency[b] after one term of study	23
IV.	Demonstrated proficiency[b] after two terms of study	18
V.	Demonstrated proficiency[b] after three terms of study	14
VI.	Demonstrated proficiency[b] after four terms of study	10

[a] Does not include transfer students (87). Transcripts were not available for sixteen students.

[b] Proficiency is defined as the satisfactory completion of a 107 (or 108) level language course or an equivalent level of competence.

Table 5.4

Proportion of Academic Work, by Division of Major,
Division of Work, Year and Pedagogy, Random Sample,
Class of 1972 (N=204) [1]

Division of Major	NATURAL SCIENCES (N=30)				
Division of Work Year and Pedagogy	Natural Sciences	Humanities	Social Sciences	Engineering	Percent Work in Pedagogical Type-Natural Science Majors
Freshman Year[3]					
1) Lecture	28.1	31.9	50.0	50.0	31.8
2) Precept or Class	32.4	66.7	43.4	–	44.4
3) Science Lab.[2]	39.5	–	6.6	50.0	23.3
4) Seminar	–	0.9	–	–	0.3
5) Other	–	0.6	–	–	0.2
TOTALS (Hrs. in Div.)	577	339	106	12	1034
Percent Work in Each Division	55.8	32.8	10.3	1.2	
Sophomore Year[3]					
1) Lecture	35.7	42.4	63.2	40.9	41.5
2) Precept or Class	27.8	49.6	36.8	18.2	34.4
3) Science Lab.[2]	34.3	–	–	40.9	20.8
4) Seminar	–	3.4	–	–	0.9
5) Other	2.2	4.7	–	–	2.5
TOTALS (Hrs. in Div.)	540	236	133	22	931
Percent Work in Each Division	58.0	25.3	14.3	2.4	

[1] Data do not include independent majors or double degree programs, in sample (N=3)

[2] Actual laboratory hours schedules, not semester hours

[3] All figures except row 'TOTALS' are percentages

Table 5.4 (continued)

Division of Major	NATURAL SCIENCES (N=30)				
Division of Work Year and Pedagogy	Natural Sciences	Humanities	Social Sciences	Engineering	Percent Work in Pedagogical Type - Natural Science Majors
Junior Year[3]					
1) Lecture	32.6	47.3	39.6	84.6	36.1
2) Precept or Class	18.9	29.7	60.4	15.4	25.7
3) Science Lab.[2]	26.8	–	–	–	19.3
4) Seminar	–	8.5	–	–	1.2
5) Independent Work	21.0	–	–	–	15.1
6) Other	0.7	14.5	–	–	2.5
TOTALS (Hrs. in Div.)	857	165	154	13	1189
Percent Work in Each Division	72.1	13.9	13.0	1.1	
Senior Year[3]					
1) Lecture	26.5	42.9	60.0	47.1	32.5
2) Precept or Class	20.4	31.1	31.1	23.5	23.5
3) Science Lab.[2]	17.6	–	2.2	–	12.5
4) Seminar	–	13.4	6.7	29.4	4.0
5) Independent Work	–	–	–	–	–
6) Thesis	32.3	–	–	–	22.6
7) Other	3.2	12.6	–	–	5.0
TOTALS (Hrs. in Div.)	558	175	45	17	795
Percent Work in Each Division	70.2	22.0	5.7	2.1	
Percent Work-All Years	51.2	38.7	8.9	1.3	

Table 5.4 (continued)

Division of Major	HUMANITIES (N=78)				
Division of Work	Natural Sciences	Humanities	Social Sciences	Engineering	Percent Work in Pedagogical Type-Humanities Majors
Year and Pedagogy					
Freshman Year[3]					
1) Lecture	31.0	36.8	48.5	—	36.9
2) Precept or Class	22.2	61.9	40.0	—	45.0
3) Science Lab.[2]	46.8	—	—	—	15.5
4) Seminar	—	—	—	—	—
5) Other	—	1.3	11.5	—	2.6
TOTALS (Hrs. in Div.)	690	1040	355	0	2085
Percent Work in Each Division	33.1	49.8	17.0	0.0	
Sophomore Year[3]					
1) Lecture	43.4	39.0	57.5	—	45.1
2) Precept or Class	15.7	50.5	30.8	—	39.5
3) Science Lab.[2]	40.9	—	11.5	—	9.5
4) Seminar	—	3.1	0.2	—	1.8
5) Other	—	7.4	—	—	4.1
TOTALS (Hrs. in Div.)	242	895	480	0	1617
Percent Work in Each Division	15.0	55.3	29.7	0.0	

Table 5.4 (continued)

Division of Major	HUMANITIES (N=78)				
Division of Work Year and Pedagogy	Natural Sciences	Humanities	Social Sciences	Engineering	Percent Work in Pedagogical Type - Humanities Majors
Junior Year[3]					
1) Lecture	39.3	30.9	55.7	33.3	34.3
2) Precept or Class	33.7	38.1	34.0	–	37.5
3) Science Lab.[2]	27.0	–	3.4	33.3	1.2
4) Seminar	–	10.8	5.7	33.3	10.1
5) Independent Work	–	18.1	1.1	–	16.0
6) Other	–	2.1	–	–	1.9
TOTALS (Hrs. in Div.)	89	2531	262	9	2891
Percent Work in Each Division	3.1	87.5	9.1	0.3	
Senior Year[3]					
1) Lecture	41.6	30.9	53.3	33.3	32.8
2) Precept or Class	33.3	23.4	28.9	6.7	23.8
3) Science Lab.[2]	25.0	–	–	20.0	0.5
4) Seminar	–	12.3	17.8	40.0	12.8
5) Independent Work	–	–	–	–	–
6) Thesis	–	25.9	–	–	23.4
7) Other	–	7.5	–	–	6.8
TOTALS (Hrs. in Div.)	30	1807	152	15	2004
Percent Work in Each Division	1.5	90.2	7.6	0.7	
Percent Work-All Years	12.2	73.0	14.5	.3	

Table 5.4 (continued)

Division of Major	SOCIAL SCIENCES (N=70)				
Division of Work Year and Pedagogy	Natural Sciences	Humanities	Social Sciences	Engineering	Percent Work in Pedagogical Type - Social Science Majors
Freshman Year[3]					
1) Lecture	27.1	34.8	50.3	50.0	36.1
2) Precept or Class	31.9	64.2	46.1	—	48.5
3) Science Lab.[2]	41.0	—	3.6	50.0	15.1
4) Seminar	—	—	—	—	—
5) Other	—	0.9	—	—	0.4
TOTALS (Hrs. in Div.)	717	850	525	6	2098
Percent Work in Each Division	34.2	40.5	25.0	0.3	
Sophomore Year[3]					
1) Lecture	28.7	46.4	45.0	47.8	44.0
2) Precept or Class	29.8	42.6	41.5	13.0	40.5
3) Science Lab.[2]	41.4	—	12.8	39.1	11.1
4) Seminar	—	6.0	0.2	—	2.3
5) Other	—	5.0	0.4	—	2.1
TOTALS (Hrs. in Div.)	181	699	999	23	1902
Percept Work in Each Division	9.5	36.8	52.5	1.2	

Table 5.4 (continued)

Division of Major SOCIAL SCIENCES (N=70)

Division of Work Year and Pedagogy	Natural Sciences	Humanities	Social Sciences	Engineering	Percent Work in Pedagogical Type - Social Science Majors
Junior Year[3]					
1) Lecture	38.9	50.1	41.4	–	43.2
2) Precept or Class	42.1	31.0	24.7	–	26.9
3) Science Lab.[2]	18.9	–	5.2	–	4.6
4) Seminar	–	14.3	1.3	100.0	4.3
5) Independent Work	–	–	26.7	–	19.4
6) Other	–	4.7	0.8	–	1.6
TOTALS (Hrs. in Div.)	95	491	1572	2	2160
Percent Work in Each Division	4.4	22.7	72.8	0.1	
Senior Year[3]					
1) Lecture	47.6	52.5	29.8	31.0	35.1
2) Precept or Class	33.3	30.2	15.3	51.7	19.7
3) Science Lab.[2]	11.9	–	1.7	10.3	1.8
4) Seminar	7.1	16.3	5.7	6.9	8.0
5) Independent Work	–	–	2.0	–	1.5
6) Thesis	–	–	39.2	–	29.0
7) Other	–	1.0	6.4	–	4.9
TOTALS (Hrs. in Div.)	42	298	1052	29	1421
Percent Work in Each Division	3.0	21.0	74.0	2.0	
Percent Work All Years	13.7	30.8	54.7	.5	

Table 5.4 (continued)

Division of Major	ENGINEERING (N=26)					
Division of Work	Natural Sciences	Humanities	Social Sciences	Engineering	Percent Work in Pedagogical Type - Engineering Majors	Percent Work in Pedagogical Type - All Majors
Year and Pedagogy						
Freshman Year[3]						
1) Lecture	26.7	51.1	40.5	41.7	31.7	34.9
2) Precept or Class	36.7	43.3	59.5	25.0	39.1	45.1
3) Science Lab.[2]	36.6	—	—	33.3	28.4	18.8
4) Seminar	—	4.3	—	—	0.6	0.1
5) Other	—	1.4	—	—	0.2	1.1
TOTALS (Hrs. in Div.)	763	141	84	36	1024	6241
Percent Work in Each Division	74.5	13.8	8.2	3.5		
Sophomore Year[3]						
1) Lecture	28.2	47.2	59.2	49.7	42.2	43.5
2) Precept or Class	33.0	42.6	34.2	9.0	23.9	35.8
3) Science Lab.[2]	38.8	—	6.7	41.3	32.9	16.8
4) Seminar	—	5.6	—	—	0.5	1.6
5) Other	—	4.6	—	—	0.4	2.4
TOTALS (Hrs. in Div.)	433	108	120	487	1158	5608
Percent Work in Each Division	38.3	9.3	10.4	42.1		

Table 5.4 (continued)

Division of Major	ENGINEERING (N=26)					
Division of Work Year and Pedagogy	Natural Sciences	Humanities	Social Sciences	Engineering	Percent Work in Pedagogical Type - Engineering Majors	Percent Work in Pedagogical Type - All Majors
Junior Year[3]						
1) Lecture	44.8	51.2	62.3	54.6	53.7	39.5
2) Precept or Class	25.6	34.6	27.0	9.4	16.5	29.5
3) Science Lab.[2]	28.0	–	5.9	27.7	21.9	8.1
4) Seminar	1.6	11.8	4.9	3.6	4.5	6.1
5) Independent Work	–	–	–	4.2	2.7	15.1
6) Other	–	2.4	–	0.4	0.6	1.7
TOTALS (Hrs. in Div.)	125	127	102	637.5	991.5	7231.5
Percent Work in Each Division	12.6	12.8	10.3	64.3		
Senior Year[3]						
1) Lecture	37.7	47.0	57.4	38.6	42.4	35.0
2) Precept or Class	54.7	33.7	27.7	12.3	19.5	21.9
3) Science Lab.[2]	7.5	–	0.7	7.7	5.8	3.6
4) Seminar	–	19.3	9.9	6.5	7.9	9.2
5) Independent Work	–	–	–	24.6	16.7	3.2
6) Thesis	–	–	–	3.1	2.1	21.2
7) Other	–	–	4.3	7.3	5.7	5.8
TOTALS (Hrs. in Div.)	53	83	141	586	863	5083
Percent Work in Each Division	6.1	9.6	16.3	67.9		
Percent Work-All Years	34.3	11.4	11.1	43.3		

Table 5.5

Estimate of the Distribution of Students in Departments Offering Courses That Satisfy the Science Distribution Requirement

Class of 1974 (N=955)

I.	Biology, Chemistry, Physics [a] (career related)	50%
II.	Biology, Chemistry, Physics [b] (non-career related)	13
III.	Psychology [c] (non-career related)	26
IV.	Geology [d] (non-career related)	11

[a] It was assumed that a certain group of students would take biology, chemistry, and physics because of career-related interests. This group includes natural science majors (197), BSE candidates (98), pre-medical students majoring in humanities and social sciences (93), and students who originally had career-related interests but later changed their minds (90). The number of pre-meds was calculated from a finding in the "Undergraduate Survey," Spring 1972 (10.6% of the social science majors and 17.9% of the humanities majors have the intention of going to medical school.) Students who originally had career-related interests but later changed their minds were roughly estimated from past experience, approximately 90% of BSE candidates who become AB candidates major in the humanities and social sciences. A comparison of concentration interests between students accepting admission to Princeton and their actual declaration of a major predicts that approximately 10% of the students who originally intend to major in the natural sciences switch to the humanities and social sciences.

[b] Residual category obtained by subtracting categories I, III, and IV from the number of students in the class.

[c] Actual number of students enrolled in Psychology 101b during their freshman and sophomore years.

[d] Actual number of students enrolled in Geology 201 during their freshman and sophomore years.

Table 5.6

Distribution of CEEB Science Achievement Test Scores
Class of 1976

Science	Number of Students Taking Examination	399 or less		400-449		450-499		500-549		550-599		600-649		650-699		700-749		750-799		800		Mean
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Biology	151	2	1	4	3	8	5	9	6	19	12	13	9	26	17	27	18	33	22	10	7	662
Chemistry	329	—	—	2	1	10	3	17	5	18	5	38	12	41	12	79	24	75	23	49	15	698
Physics	180	—	—	2	1	1	1	7	4	7	4	20	11	34	19	48	27	42	23	19	10	702
TOTAL	660	2	—	8	1	9	3	33	5	44	7	71	11	101	15	54	23	50	23	78	12	691

Table 5.7

Student Evaluation of Aspects of the Departmental Program for
Undergraduate Majors, Four Year Evaluation,
Responses of A.B. Candidates, Class of 1972
(N=307)

Ratings*	Contribution of Departmental Courses to Student's Program of Study in Department (N=293)	Degree of Flexibility Offered Majors in Planning Programs of Study (N=301)	Contribution of Senior Departmentals to Student's Program of Study in Department (N=219)	Contribution of Junior Independent Work to Student's Program of Study in Department (N=253)	Contribution of Senior Thesis to Student's Program of Study in Department (N=288)	Availability on an Informal Basis of Departmental Faculty Members (N=307)	Overall Quality of Departmental Program of Study for Undergraduate Majors (N=298)
Excellent	29%	30%	5%	27%	44%	5%	24%
Good	45	38	17	42	39	17	54
Fair	20	19	26	18	10	26	17
Poor	5	9	25	9	5	26	5
Unacceptable	1	4	26	4	2	26	0

* The "inapplicable" category has been eliminated from the original tables in the evaluation form and the percentages have been recalculated

Table 5.8

Self-Report of the Single Most Stimulating or Valuable Undergraduate Academic Experience
Classes of 1954, 1964, and 1969

		Class		
	Total	1954	1964	1969
	(N=917)	(N=272)	(N=347)	(N=352)
Senior Independent Work	42%	36%	42%	46%
The Faculty	6	11	6	3
Precepts	5	6	5	4
A Specific Course	4	4	4	4
Other*	43	43	43	43
TOTAL	100%	100%	100%	100%

* All Categories under 4%

Table 5.9

Evaluation of Amount of Time Spent with Adviser on Senior Independent Work, by Division, Systematic Sample, Class of 1972*

Amount of Time	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=292)	(N=110)	(N=118)	(N=31)	(N=33)
Too Much	2%	3%	1%	3%	–
About Right	52	60	40	68	54
Too Little	46	37	59	29	46
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972.

Table 5.10

DISTRIBUTION OF FACULTY BY RANK OF LECTURER OR PRINCIPAL INSTRUCTOR
AND BY DIVISIONAL OFFERINGS OF INTRODUCTORY COURSES, 1971-72*

ACADEMIC DIVISION

Faculty Rank	HUMANITIES Number of Princeton Faculty	% of Total Faculty	Number of Introductory Courses	% of Introductory Courses	SOCIAL SCIENCES Number of Princeton Faculty	% of Total Faculty	Number of Introductory Courses	% of Introductory Courses	NATURAL SCIENCES Number of Princeton Faculty	% of Total Faculty	Number of Introductory Courses	% of Introductory Courses	ENGINEERING Number of Princeton Faculty	% of Total Faculty	Number of Introductory Courses	% of Introductory Courses
Professor	93	36	14	32	61	35	9.3	52	94	45	8.5	42	41	45	1	[illegible]
Associate Professor	37	14	11.7	26	19	11	2	11	19	9	4	20	21	23	1.4	37
Assistant Professor	59	23	7.8	18	49	28	5.3	30	48	23	2.2	11	16	18	1	[illegible]
Lecturer	63	27	7	16	43	25	1.4	7	52	23	4.1	20	19	14	—	—
Graduate Student	—	—	8	19	—	—	—	—	—	—	1.8	9	—		—	—
TOTAL **	254	100	44	100	172	99	18	100	208	100	20	100	100	100	3	100

TOTAL

Faculty Rank	Number of Princeton Faculty	% of Total Faculty	Number of Introductory Courses	% of Introductory Courses
Professor	288	36	32.8	39
Associate Professor	96	12	17.1	22
Assistant Professor	172	23	15.8	19
Lecturer	183	25	11.7	13
Graduate Student	—	—	3.1	4
TOTAL	738	100	83	100

* Introductory courses are defined as those offerings which introduce a student to a branch of knowledge or to impart basic knowledge needed to enroll in a more advanced course. For example, Mathematics 101, 102, Philosophy 101, [illegible] 201, 202, Music 105. Introductory courses in History were limited to [illegible] while introductory courses in Religion included all 200 level courses with the exception of [illegible]

** In most courses one person is responsible for all the lectures. In those courses that are jointly taught by several lecturers each is listed in the table in proportion to the faculty [illegible] A similar procedure was followed for [illegible] of the pages. Number of introductory courses [illegible]

Source: [illegible], 1972.

Table 5.11

Evaluation by Students of Overall Quality of Academic Experiences During Previous Years, by Class, Systematic Sample, Classes of 1972, 1973, 1974 and 1975*

Overall Quality of Academic Experiences	Total	Freshman	Sophomore	Junior	Senior
	(N=1168)	(N=301)	(N=294)	(N=264)	(N=309)
Excellent	31%	33%	28%	24%	39%
Good	46	47	49	50	41
Fair	18	16	21	21	16
Poor	4	4	2	5	4
TOTAL	99%	100%	100%	100%	100%

[*] Source: Undergraduate Survey, Spring 1972.

Table 5.12

Evaluation by Students of Overall Quality of Academic Experiences During Current Year, by Division, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Overall Qulity of Academic Experiences	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=843)	(N=321)	(N=289)	(N=148)	(N=85)
Excellent	31%	34%	27%	30%	34%
Good	46	44	48	49	47
Fair	19	17	23	18	17
Poor	4	5	3	3	2
TOTAL	100%	100%	101%	100%	100%

* Source: Undergraduate Survey, Spring 1972. Sophomores assigned to division of major selected during Spring pre-registration period.

Table 5.13

Student Evaluation of Various Teaching Forms, Four Year Evaluation, Responses of A.B. Candidates, Class of 1972 (N=307)

Ratings*	Preceptorials (N=296)	Lecture Courses (N=307)	Laboratories (N=202)	Seminars (N=253)
Excellent	15%	12%	5%	26%
Good	36	61	29	49
Fair	33	24	46	22
Poor	14	3	16	3
Unacceptable	2	0	3	0

* The "inapplicable" category has been eliminated from the original tables in the evaluation form and the percentages have been recalculated.

Table 5.14

Student Evaluation of Various Teaching Forms, Two Year Evaluation, Responses of A.B. Candidates, Class of 1970 (N=657)

Ratings*	Preceptorials (N=644)	Lecture Courses (N=653)	Laboratories (N=553)	Seminars (N=426)
Excellent	8%	10%	5%	19%
Good	36	61	27	51
Fair	38	26	45	24
Unacceptable	2	1	3	1

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* The "inapplicable" category has been eliminated from the original tables in the evaluation form and the percentages have been recalculated.

Table 5.15

Student Evaluation of Maximum Size for a Lecture, by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Maximum Size for a Lecture	Total	Freshman	Sophomore	Junior	Senior
	(N=1185)	(N=304)	(N=312)	(N=271)	(N=298)
No Opinion	8%	9%	9%	6%	7%
Under 50	4	4	2	6	3
50-100	8	8	9	10	6
101-150	13	15	14	11	11
151-200	6	6	6	7	3
Over 200	4	5	5	2	4
Size Doesn't Matter	58	54	55	58	66
TOTAL	101%	101%	100%	101%	100%

* Source: Undergraduate Survey, Spring 1972.

Table 5.16

Student Evaluation of Maximum Size for a Discussion Section, by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Maximum Size	Total	Freshman	Sophomore	Junior	Senior
	(N=1185)	(N=304)	(N=312)	(N=271)	(N=298)
No Opinion	3%	2%	4%	4%	2%
3-5	3	1	2	3	4
6-7	6	5	7	8	6
8-9	15	12	13	16	17
10	38	39	40	37	37
11-12	12	12	9	12	15
13-15	16	21	19	15	12
16-20	4	6	4	3	4
Over 20	1	1	2	—	—
Size Doesn't Matter	1	1	1	2	2
TOTAL	99%	100%	101%	100%	99%

* Source: Undergraduate Survey, Spring 1972.

Table 5.17

Classroom-Related Computer Use In Undergraduate and Graduate Courses At Princeton University Academic Year 1971-72

	Number of Courses+	
Classroom-Related Use	Undergraduate	Graduate
Large Data Base Inquiry	2	12
Simulation	18	7
Problem Solving	45*	30*
Laboratory Data Analysis	18	7

Source: Princeton Computer Center Survey, 1971-72.

+ There are multiple entries for some courses.

* Approximate number.

Table 5.18

AUDIO-VISUAL EQUIPMENT AVAILABLE AT PRINCETON UNIVERSITY A/V CENTER

PROJECTORS

2	Opaque
4	Overhead
2	8 mm
4	16 mm
4	35 mm Slide 2X2
2	Lantern Slide 3 1/4" X 4"

ACCESSORIES

2	Cinemascope Lens 2" 16 mm
2	Controls, Remote "Carousel"
4	Screens w/Stand
5	Screens - Wall Mount
1	Slide Selector "Film Strip" 35 mm
2	Projection Tables

RECORDERS

1	Tape Recorder Cassette
4	Tape Recorder - Real to Reel
1	Record Player

MICROPHONES AND ACCESSORIES

4	Crystal
14	Dynamic
7	Microphone Stands

ACCESSORIES, GENERAL

1	Amplifier - Speaker
3	A.C. Extentions 25'
1	Copier, Color Contact
1	Mixer
3	Speakers
3	Stands

TABLES TO CHAPTER 6 6.1 THROUGH 6.21

Table 6.1

Self-Report of Attendance in All Pass-Fail as Compared to All Graded Courses During Undergraduate Career, by Division, Systematic Sample, Classes of 1972, 1973, and 1974*

Attend Pass-Fail Courses	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=782)	(N=303)	(N=273)	(N=132)	(N=74)
More Often	4%	5%	5%	4%	4%
Less Often	27	23	25	35	35
Same	68	72	70	61	61
TOTAL	99%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972. Sophomores assigned to division of major selected during Spring pre-registration period.

Table 6.2

Self-Report of Attendance in all Pass-Fail as Compared to all Graded Courses During Undergraduate Career, by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Attend Pass-Fail Courses	Total (N=990)	Freshman (N=182)	Sophomore (N=244)	Junior (N=258)	Senior (N=306)
More Regularly	5%	3%	4%	7%	5%
Less Regularly	26	24	27	21	30
Same	69	73	69	72	66
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972.

Table 6.3

Self-Report of Effort Devoted to all Pass-Fail as Compared to All Graded Courses During Undergraduate Career, by Division, Systematic Sample, Classes of 1972, 1973, and 1974*

Effort Devoted to Pass-Fail Courses	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=782)	(N=302)	(N=275)	(N=131)	(N=74)
More Effort	4%	4%	4%	2%	4%
Less Effort	46	40	45	52	61
Same	50	55	51	47	35
TOTAL	100%	99%	100%	101%	100%

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* Source: Undergraduate Survey, Spring 1972. Sophomores assigned to division of major selected during Spring pre-registration period.

Table 6.4

Self-Report of Effort Devoted to all Pass-Fail as Compared to All Graded Courses During Undergraduate Career, by Class, Systematic Sample, Classes of 1972, 1973, 1974 and 1975*

Effort Devoted To Pass-Fail Courses	Total	Freshman	Sophomore	Junior	Senior
	(N=988)	(N=180)	(N=245)	(N=259)	(N=304)
More Effort	4%	6%	3%	4%	5%
Less Effort	45	42	46	42	48
Same	51	52	51	54	47
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972

Table 6.5

Self-Report on Probability of "Deciding for Myself" How Best to Distribute Effort in Course Work in all Pass-Fail as Compared to All Graded Courses During Undergraduate Career, By Division, Systematic Sample, Classes of 1972, 1973, and 1974*

	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=784)	(N=300)	(N=274)	(N=132)	(N=78)
More Likely to Decide for Myself	66%	65%	64%	71%	69%
Not More Likely to Decide for Myself	34	35	36	29	31
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972. Sophomores assigned to division of major selected during pre-registration period.

Table 6.6

Self-Report on Probability of "Deciding for Myself" How Best to Distribute Effort in Course Work in all Pass-Fail as Compared to All Graded Courses During Undergraduate Career, by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

	Total (N=1014)	Freshman (N=203)	Sophomore (N=252)	Junior (N=257)	Senior (N=302)
More Likely to Decide for Myself	66%	67%	68%	61%	68%
Not More Likely to Decide for Myself	34	33	32	39	32
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972

Table 6.7

Self-Report of Number of Pass-Fail Courses Taken During Undergraduate Career, by Division, Systematic Sample, Class of 1972*

Number of Pass-Fail Courses	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=302)	(N=113)	(N=119)	(N=33)	(N=39)
0	2%	2%	3%	—	—
1	3	4	2	6	3
2	9	16	6	6	3
3	13	12	17	12	5
4	18	18	18	27	13
5	13	13	12	24	8
6	14	13	12	6	31
7	6	4	3	18	8
8	11	6	15	—	18
More than 8	11	13	13	—	12
TOTAL	100%	101%	101%	99%	101%
MEAN		5.2	5.6	4.5	6.3

* Source: Undergraduate Survey, Spring 1972. Seniors only.

Table 6.8

Self-Report of the Number of Pass-Fail Courses Enrolled in Interesting But Difficult or Unfamiliar Areas Otherwise Avoided, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Number of Pass-Fail Courses	Total (N=1185)	Freshman (N=304)	Sophomore (N=298)	Junior (N=271)	Senior (N=312)
None	43%	47%	52%	37%	34%
1	21	24	26	20	15
2	14	3	12	21	19
3	6	--	2	9	12
4	4	--	1	9	7
5-6	3	--	--	3	8
7-8	1	--	--	--	2
More Than 8	--	--	--	--	1
Can't Say	9	26	6	--	3
TOTAL	101%	101%	99%	99%	101%

* Source: Undergraduate Survey, 1972

Table 6.9

Proportion of Students Enrolled in Full Pass-Fail Courses Receiving Grades and Pass-Fail, by Term, 1971-72

FALL TERM

Courses	Grade		Pass-Fail		Total	
	N	%	N	%	N	%
Fall Term Total	478	30	1115	70	1593	100
Aerospace & Mechanical Sciences (Student-Initiated Seminar)	–	–	15	100	15	100
Afro-American Studies (Student-Initiated Seminar)	10	56	8	44	18	100
Anthropology 209	3	2	138	98	141	100
Anthropology 312	9	28	23	72	32	100
Anthropology 352	1	7	14	93	15	100
Anthropology 353	3	33	6	67	9	100
Anthropology 400	2	20	8	80	10	100
Architecture (Student-Initiated Seminar)	–	–	6	100	6	100
Architecture 203	8	21	30	79	38	100
Art 101	13	9	137	91	150	100
Chemistry 333	14	87	2	13	16	100
East Asian Studies 331	6	25	18	75	24	100
East Asian Studies 341	9	60	6	40	15	100
Engineering (Student-Initiated Seminar)	2	9	20	91	22	100
German (Student-Initiated Seminar)	4	23	13	77	17	100
History (Student-Initiated Seminar)	12	71	5	29	17	100
History and Philosophy of Science 321	–	–	10	100	10	100
Humanities 405	12	57	9	43	21	100
Philosophy 101	44	32	95	68	139	100
Philosophy 201	11	12	82	88	93	100
Philosophy 203	19	28	48	72	67	100
Philosophy 300	25	58	18	42	43	100
Philosophy 307	27	57	20	43	47	100
Philosophy 311	1	4	21	96	22	100

Table 6.9 (continued)

Proportion of Students Enrolled in Full Pass-Fail Courses Receiving Grades and Pass-Fail, by Term, 1971-72

FALL TERM

Courses	Grade		Pass-Fail		Total	
	N	%	N	%	N	%
Philosophy 318	4	22	14	78	18	100
Philosophy 319	26	35	48	65	74	100
Politics 203	64	49	66	51	130	100
Politics 325	18	47	20	53	38	100
Politics Seminar I	—	—	13	100	13	100
Politics Seminar II	7	87	1	13	8	100
Psychology 405	4	57	3	43	7	100
Psychology Seminar I	7	54	6	46	13	100
Psychology Seminar II	12	100	—	—	12	100
Religion 201	8	18	36	82	44	100
Religion 303	8	33	16	67	24	100
Religion 305	21	41	30	59	51	100
Religion 309	3	11	24	89	27	100
Religion 311	13	43	17	57	30	100
Religion 314	18	51	17	49	35	100
Sociology 325	19	68	9	32	28	100
Sociology 327	3	11	24	89	27	100
Sociology 335	8	30	19	70	27	100
SPRING TERM						
Spring Term Total	657	27	1822	73	2479	100
Afro-American Studies, Seminar 3	1	50	1	50	2	100
Afro-American Studies, Seminar 5	22	71	9	29	31	100
Anthropology 212	8	18	37	82	45	100
Anthropology 330	9	39	14	61	23	100
Anthropology 342	15	15	86	85	101	100
Anthropology (Student-Initiated Seminar 5)	2	11	16	89	18	100

Table 6.9 (continued)

Proportion of Students Enrolled in Full Pass-Fail Courses Receiving Grades and Pass-Fail, by Term, 1971-72

SPRING TERM

Courses	Grade		Pass-Fail		Total	
	N	%	N	%	N	%
Astrophysics (Student-Initiated Seminar 2)	18	82	4	18	22	100
East Asian Studies 232	12	35	22	65	34	100
East Asian Studies 334	3	27	8	73	11	100
East Asian Studies 338	10	77	3	23	13	100
East Asian Studies 342	13	43	17	57	30	100
East Asian Studies (Student-Initiated Seminar 5)	5	45	6	55	11	100
Economics 315	19	40	29	60	48	100
Economics 331	27	59	19	41	46	100
Civil & Geological Engineering (Student-Initiated Seminar 3)	3	23	77	10	13	100
Civil & Geological Engineering (Student-Initiated Seminar 4)	–	–	12	100	12	100
Electrical Engineering (Student-Initiated Seminar 2)	3	37	5	63	8	100
English (Student-Initiated Seminar 5)	–	–	17	100	17	100
Humanities (Student-Initiated Seminar 3)	16	84	3	16	19	100
Music 406	–	–	5	100	5	100
Music (Student-Initiated Seminar 1)	2	14	12	86	14	100
Near Eastern Studies 212	8	89	1	11	9	100
Near Eastern Studies (Student-Initiated Seminar 3)	2	50	2	50	4	100
Philosophy 102	39	34	75	66	114	100
Philosophy 202	7	11	55	89	62	100
Philosophy 204	11	23	36	77	47	100
Philosophy 301	20	37	43	68	63	100
Philosophy 302	3	23	10	77	13	100

Table 6.9 (continued)

Proportion of Students Enrolled in Full Pass-Fail Courses Receiving Grades and Pass-Fail, by Term, 1971-72

SPRING TERM

Course	Grade		Pass-Fail		Total	
	N	%	N	%	N	%
Philosophy 305	18	29	45	71	63	100
Philosophy 308	13	41	19	59	32	100
Philosophy 310	6	13	41	87	47	100
Philosophy 315	10	20	41	80	51	100
Philosophy 316	23	70	10	30	23	100
Philosophy 323	11	92	1	8	12	100
Philosophy Senior Seminar	3	33	6	67	9	100
Philosophy (Student-Initiated Seminar 3)	8	100	–	–	8	100
Politics (Student-Initiated Seminar 7)	7	64	4	36	11	100
Politics (Student-Initiated Seminar 8)	9	90	1	10	10	100
Psychology 308	8	50	8	50	16	100
Psychology 402	48	35	88	65	136	100
Religion 202	22	31	49	69	71	100
Religion 301	31	5	587	95	618	100
Religion 307	8	14	48	86	56	100
Religion 320	13	12	97	88	110	100
Religion (Student-Initiated Seminar 5)	4	67	8	33	12	100
Religion (Student-Initiated Seminar 6)						
Romance Languages & Literatures (Student-Initiated Seminar 2)	6	75	2	25	8	100
Slavic Languages & Literatures (StudentInitiated Seminar 1)	7	87	1	13	8	100
Slavic Languages & Literatures (Student-Initiated Seminar 2)	1	17	5	83	6	100
Sociology 326	13	25	40	75	53	100
Sociology 336	74	39	116	61	190	100
Sociology 342	10	67	5	33	15	100
Sociology 346	7	26	20	74	27	100
Statistics 351	19	45	23	55	42	100

Table 6.10

Student Evaluation of Type of Examination Most Useful as a "Learning Device," by Division, Systematic Sample Classes of 1972, 1973, and 1974*

Type of Examination	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=715)	(N=264)	(N=244)	(N=128)	(N=79)
Written	79%	81%	74%	82%	78%
Oral	21	19	26	18	22
TOTAL	100%	100%	100%	100%	100%
	(N=769)	(N=289)	(N=264)	(N=137)	(N=79)
Examinations Written In Class	32%	35%	28%	34%	34%
Examinations Written At Home	68	65	72	66	66
TOTAL	100%	100%	100%	100%	100%
	(N=764)	(N=296)	(N=262	(N=130)	(N=76)
Essay	81%	91%	85%	65%	54%
Objective	19	9	15	35	46
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972. Sophomores assigned to division of major selected during Spring pre-registration period.

Table 6.11

Student Evaluation of Type of Examination Most Useful as a "Learning Device," by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Type of Examination	Total	Freshman	Sophomore	Junior	Senior
	(N=981)	(N=244)	(N=248)	(N=225)	(N=264)
Written	79%	81%	82%	77%	76%
Oral	21	19	18	23	24
TOTAL	100%	100%	100%	100%	100%
	(N=1063)	(N=267)	(N=261)	(N=251)	(N=284)
Examination Written In Class	33%	38%	35%	27%	33%
Examination Written At Home	67	62	65	73	67
TOTAL	100%	100%	100%	100%	100%
	(N=1073)	(N=282)	(N=265)	(N=240)	(N=286)
Essay	79%	75%	78%	79%	84%
Objective	21	25	22	21	16
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972.

Table 6.12

Student Evaluation of Type of Examination Most Valid as an "Evaluative Device," by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Type of Examination	Total	Freshman	Sophomore	Junior	Senior
	(N=978)	(N=246)	(N=248)	(N=224)	(N=260)
Written	75%	77%	79%	75%	70%
Oral	25	23	21	25	30
TOTAL	100%	100%	100%	100%	100%
	(N=1028)	(N=261)	(N=258)	(N=236)	(N=273)
Examination Written In Class	47%	51%	46%	43%	46%
Examination Written At Home	53	49	54	57	54
TOTAL	100%	100%	100%	100%	100%
	(N=1051)	(N=271)	(N=264)	(N=237)	(N=279)
Essay	68%	67%	69%	69%	69%
Objective	32	33	31	31	31
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972.

Table 6.13

Student Evaluation of Type of Examination Most Valid as an "Evaluative Device," by Division, Systematic Sample, Classes of 1972, 1973, and 1974*

Type of Examination	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=708)	(N=264)	(N=240)	(N=127)	(N=77)
Written	75%	79%	72%	76%	73%
Oral	25	21	28	24	27
TOTAL	100%	100%	100%	100%	100%
	(N=738)	(N=275)	(N=252)	(N=132)	(N=79)
Examination Written In Class	45%	47%	41%	45%	52%
Examination Written At Home	55	53	59	55	48
TOTAL	100%	100%	100%	100%	100%
	(N=751)	(N=295)	(N=250)	(N=128)	(N=78)
Essay	69%	82%	75%	50%	36%
Objective	31	18	25	50	64
TOTAL	100%	100%	100%	100%	100%

* Source: Undergraduate Survey, Spring 1972. Sophomores assigned to division of major selected during Spring pre-registration period.

Table 6.14

Grade Distribution by Term and Year
1969-70, 1970-71, 1971-72

Grade	Fall Term 1969-70 (N=13,484)	Spring Term 1969-70 (N=13,466)	Fall Term 1970-71 (N=14,430)	Spring Term 1970-71 (N=14,055)	Fall Term 1971-72 (N=15,782)	Spring Term 1971-72 (N=15,554)
A	17%	17%	20%	24%	25%	25%
B	33	23	35	35	38	35
C	20	7	18	13	17	14
D	4	1	4	3	3	3
Fail	2	2	2	2	2	2
Pass	22	42	18	21	14	18
Other	3	7	2	2	2	2
TOTAL	101	99	99	100	101	99

Table 6.15

GRADES BY CLASS, ACADEMIC YEAR 1971-72

Grade	Fall Semester					Spring Semester				
	Total	Freshman	Sophomore	Junior	Senior	Total	Freshman	Sophomore	Junior	Senior
A+	1.7	1.4	1.8	1.6	2.1	2.0	1.8	2.1	2.2	1.9
A	12.5	10.3	12.7	12.6	15.3	11.2	10.1	11.7	12.7	9.8
A-	11.4	11.0	10.5	11.5	13.4	12.4	11.7	12.6	12.6	12.7
B+	12.7	12.1	12.9	12.8	13.4	12.4	12.9	13.4	12.4	10.1
B	16.3	18.4	17.0	14.6	14.7	13.7	15.5	14.5	12.0	12.1
B-	8.6	10.1	8.0	8.5	7.1	8.6	10.0	8.8	7.9	6.8
C+	5.7	7.7	5.8	5.1	3.3	5.4	7.2	5.5	4.3	3.7
C	7.5	10.8	7.9	5.7	4.5	5.8	7.6	6.2	4.1	4.6
C-	3.0	4.0	3.0	2.5	2.1	2.7	4.1	2.1	2.0	2.3
D	3.1	4.5	3.5	2.0	2.0	3.0	4.4	3.0	1.8	2.6
F	1.9	2.0	2.2	1.9	1.3	2.2	2.4	2.4	1.5	2.4
P	13.5	6.9	13.4	18.5	17.1	18.3	10.3	15.4	23.0	29.8
Other	2.0	.9	1.2	2.6	3.8	2.3	2.0	2.2	3.5	1.2
Total Courses	15786	4538	4223	4193	2828	15554	4574	4306	4070	2604

Table 6.16

Grade Distribution,
Not Including "Pass" and "Other"
1969-70, 1970-71, and 1971-72

Grade	Fall Term 1969-70	Spring Term 1969-70	Fall Term 1970-71	Spring Term 1970-71	Fall Term 1971-72	Spring Term 1971-72
	(N=9,843)	(N=6,598)	(N=11,256)	(N=10,541)	(N=12,941)	(N=12,132)
A	23%	35%	26%	31%	30%	32%
B	43	47	44	46	45	44
C	27	14	23	17	20	18
D	5	2	5	4	3	4
F*	2	2	2	2	2	2
TOTAL	100%	100%	100%	100%	100%	100%

* The proportion of failing grades in all courses has remained constant at approximately two percent. This number has been retained in this table because it was not possible to distinguish which failing grades were received in "regular" or "pass-fail" courses.

Table 6.17

Percentage Grade Distribution of Departments and Programs, by Term

Fall 1971-72

	Afro-American Studies	American Civilization	Anthropology	Arabic[1]	Architecture and Urban Planning	Art and Archaeology	Astrophysical Sciences	Biochemical Sciences	Biology	Chemistry
A	31.9	33.7	13.8	37.5	14.2	19.1	28.5	31.6	20.3	25.0
B	34.0	57.1	7.1	41.6	51.0	25.0	57.1	49.6	42.5	35.2
C	8.5	6.5		16.7	15.4	16.5		11.1	25.6	29.5
D	–	–	.4	–	.3	2.0		2.6	6.5	7.2
F	–	–	3.8	–	1.4	2.2		–	2.6	1.7
P	19.1	2.6	74.1	–	16.2	33.2		2.6	1.4	.5
No. of Courses	47	77	240	24	345	547	7	117	496	767

[1] Included in the department of Near Eastern Studies.

	Chinese[2]	Classics	Comparative Literature	Creative Writing and Theatre	East Asian Studies	Economics	Engineering (Combined)	Aerospace and Mechanical Sciences	Basic Engineering
A	65.5	31.2		–	43.0	21.8	30.0	25.5	19.7
B	24.1	43.5		–	32.3	37.3	39.7	31.5	50.4
C	3.4	16.3		–	3.2	23.0	15.0	20.4	3.9
D	–	4.0		–	.6	4.9	3.3	3.7	–
F	–	2.5	–	–	1.9	2.2	1.0	–	–
P	1.7	5.0		100.0	16.5	6.2	6.4	9.7	22.8
No. of Courses	58	400		124	158	889	1010	216	127

[2] Included in the department of East Asian Studies.

Table 6.17 (continued)

Percentage Grade Distribution of Departments and Programs, by Term (continued)

Fall 1971-72

	Chemical Engineering	Civil and Geological Engineering	Electrical Engineering	English	European Literature	French	Geology	Germanic Larguages and Literatures	Greek[3]
A	27.5	33.2	37.1	30.2		22.9	23.9	28.9	48.3
B	42.3	44.7	34.3	49.9	32.5	52.2	37.8	35.7	37.0
C	15.5	13.0	18.1	11.4	6.0	19.3	23.5	16.9	9.7
D	2.1	3.6	4.8	.8	–	1.7	3.5	4.9	1.6
F	1.4	1.4	1.6	.8	1.7	1.9	3.5	1.3	–
P	.7	3.2	2.0	5.9	32.5	1.2	6.0	11.4	3.2
No. of Courses	142	277	248	1323	117	645	230	308	62

[3] Included in the Classics department.

	History	History and Philosophy of Science	Humanistic Studies	Italian[4]	Japanese[2]	Latin[3]	Latin American Studies	Mathematics	Music
A	28.4	29.1	25.9	32.1	57.1	32.9	43.8	29.0	25.9
B	49.6	43.6	29.4	39.2	32.1	35.1	37.5	32.1	36.4
C	11.8	9.1	6.5	10.7	3.6	12.7	6.3	24.1	15.9
D	.9	–	.5	10.7	–	7.4	–	7.6	.4
F	1.4	–	2.5	3.6	7.2	4.3	6.3	2.6	3.2
P	5.6	12.7	33.3	–		7.4	–	3.1	12.3
No. of Courses	1099	110	201	28	28	94	16	1056	220

[2] Included in the department of East Asian Studies.
[3] Included in the Classics department.
[4] Included in the department of Romance Languages and Literatures.

Table 6.17 (continued)

Percentage Grade Distribution of Departments and Programs, by Term (continued)

Fall 1971-72

	Near Eastern Studies	Persian[4]	Philosophy	Physics	Politics	Portuguese[4]	Psychology	Religion	Romance Languages and Literatures
A	46.3	100.0	13.3	21.3	23.2	11.1	38.2	26.2	21.5
B	37.8		21.4	32.5	44.9	22.2	31.4	28.5	49.7
C	7.3		5.6	30.6	12.4	11.1	17.4	9.2	20.3
D	1.2		.3	8.1	2.4	11.1	2.6	1.7	3.6
F	–		1.9	3.6	1.2	11.1	1.2	1.1	2.5
P	1.2		55.2	2.9	13.6	22.2	8.2	30.4	1.4
No. of Courses	82	4	624	614	838	9	1036	469	1289

[4] Included in the department of Romance Languages and Literatures.

	Slavic Languages and Literatures	Sociology	Spanish[4]	Statistics	Teacher Preparation Program	Visual Arts	Woodrow Wilson School
A	36.3	25.3	20.9	34.7			25.3
B	39.3	36.4	37.9	34.7			21.5
C	16.0	13.8	23.1	7.4			3.8
D	4.0	1.6	8.7	6.3			–
F	–	5.1	4.7	4.2	4.2	1.6	–
P	3.0	14.2	2.9	9.5	95.8	98.4	48.1
No. of Courses	99	508	277	95	24	190	79

[4] Included in the department of Romance Languages and Literatures.

Table 6.17 (continued)

Percentage Grade Distribution of Departments and Programs, by Term

Spring 1971-72

	Afro-American Studies	American Civilization	Anthropology	Arabic[1]	Architecture and Urban Planning	Art and Archaeology	Astrophysical Sciences	Biochemical Sciences	Biology	Chemistry
A	18.6	55.2	19.3	47.4	16.9	23.6	25.0	44.2	27.8	23.2
B	49.2	31.0	9.9	47.4	49.5	42.4	27.9	38.4	35.3	35.8
C	16.9	6.9	.4	0	14.9	13.0	13.2	11.6	23.5	24.5
D	–	–	–	5.3	1.7	1.6	11.8	0	8.5	7.5
F	1.7	–	2.2	0	2.4	1.6	4.4	2.3	1.8	3.7
P	13.6	6.9	67.3	0	13.9	13.8	10.3	1.2	1.7	1.2
No. of Courses	59	29	223	19	295	632	68	86	544	681

[1] Included in the department of Near Eastern Studies.

	Chinese[2]	Classics	Creative Writing and Theatre	East Asian Studies	Economics	Engineering (Combined)	Aerospace and Mechanical Sciences	Basic Engineering	Chemical Engineering
A	68.6	33.8		44.4	20.2	33.0	31.3	22.6	39.8
B	25.5	33.1		23.0	33.6	36.3	31.9	59.1	36.7
C	3.9	13.6		2.1	25.9	18.0	24.7	15.1	18.0
D	2.0	4.9		.5	5.1	4.7	7.2	1.1	2.3
F	0	4.2	.7	.5	1.5	1.8	1.8	0	0
P	0	7.5	99.3	28.3	11.3	4.7	1.8	2.2	3.1
No. of Courses	51	308	148	187	878	946	166	93	128

[2] Included in the department of East Asian Studies

Table 6.17 (continued)

Percentage Grade Distribution of Departments and Programs, by Term (continued)

Spring 1971-72

	Civil and Geological Engineering	Electrical Engineering	English	European Civilization	European Literature	French	Geology	Germanic Languages and Literatures	Greek[3]
A	36.0	31.5	35.8	57.1	35.3	25.7	21.3	26.8	34.6
B	33.3	33.9	46.6	42.9	42.2	50.2	43.9	40.1	30.8
C	17.2	16.4	7.1		5.2	13.9	18.8	19.0	13.5
D	2.3	7.4	1.2		.9	2.4	2.9	2.6	5.8
F	1.1	3.7	.9		1.7	2.7	2.5	2.6	11.5
P	9.2	3.7	6.5		4.3	3.5	8.4	7.4	
No. of Courses	261	298	1290	14	116	452	239	269	52

[3] Included in the Classics department.

	History	History and Philosophy of Science	Humanistic Studies	Italian	Japanese	Latin	Latin American Studies	Mathematics	Music
A	27.8	36.2	39.8	33.3	70.8	39.0	16.7	34.4	25.2
B	48.8	40.6	31.6	42.9	29.2	29.0	83.3	33.3	28.2
C	12.7	14.5	12.0	9.5	0	12.0	0	19.3	11.7
D	2.6	1.4	5.3	4.8	0	1.0	0	5.1	2.5
F	1.2	1.4	0	9.5	0	2.0	0	3.2	3.4
P	4.2	4.3	6.8		0	14.0	0	2.1	21.2
No. of Courses	1111	69	133	21	24	100	12	709	326

[2] Included in the department of East Asian Studies.
[3] Included in the Classics department.
[4] Included in the department of Romance Languages and Literatures.

Table 6.17 (continued)

Percentage Grade Distribution
of Departments and Programs, by Term
(continued)
Spring 1971-72

	Naval Science	Near Eastern Studies	Persian[1]	Philosophy	Physics	Politics	Portuguese[4]	Psychology	Religion	Romance Languages and Literatures
A	13.3	54.0	100.0	15.8	29.4	21.5	50.0	27.0	10.4	25.2
B	33.3	33.3		13.6	30.9	50.6	25.0	33.0	10.2	48.3
C	26.7	0		1.5	24.4	15.0		19.2	2.7	15.8
D	13.3	1.1		.2	7.0	1.8		3.7	.3	2.9
F	0	0		3.7	3.6	2.1		1.1	2.2	2.8
P	13.3	6.9		61.5	2.3	6.5	25.0	14.0	71.1	3.8
No. of Courses	15	87	4	546	528	1041	4	907	1075	683

[1] Included in the department of Near Eastern Studies.
[4] Included in the department of Romance Languages and Literatures.

	Slavic Languages and Literatures	Sociology	Spanish[4]	Statistics	Teacher Preparation Program	Visual Arts	Woodrow Wilson School
A	44.3	21.2	21.2	31.2			37.2
B	31.8	33.6	46.0	23.8			22.3
C	12.5	11.2	19.2	17.5			1.7
D	4.5	.8	4.0	3.2			1.7
F	0	2.1	2.5	2.6		1.9	1.7
P	6.8	29.0	4.0	18.0	100.0	96.9	31.4
No. of Courses	88	730	198	189	28	262	121

[4] Included in the department of Romance Languages and Literatures.

Table 6.18

Percentage Graduating With Honors, by Academic Ratings at Admission, Class of 1972

Expected Grade Distribution Admissions Rating, Class of 1972 (N=857)		Departmental Honors* 1971-72 (N=781)	
Academic One		Highest Honors	7%
1	10%	High Honors	15
2	36	Honors	24

* Not Including "Pass Track"

Table 6.19

Distribution of Ratings for Selected Items
From Student Course Evaluation, by Term
1971-72

STRUCTURAL FORM

Rating	Overall Quality of Lecture		Overall Quality of Precept/ Class		Overall Quality of Laboratory		Overall Quality of Seminar	
	Fall (N= 9213)	Spring (N= 7775)	Fall (N= 8563)	Spring (N= 6354)	Fall (N= 2169	Spring (N= 1830)	Fall (N= 912)	Spring (N= 772)
Excellent	30%	31%	20%	23%	14%	13%	34%	35%
Good	40	42	38	40	16	37	39	43
Fair	21	19	27	24	34	30	19	14
Poor	7	6	10	9	11	13	6	6
Unacceptable	2	2	4	4	5	7	2	2

Table 6.19 (continued)

Distribution of Ratings for Selected Items
From Student Course Evaluation, by Term
1971-72

STUDENT ASSIGNMENTS

Rating	Overall Value of Papers, Reports, Problem Sets		General Quality of Readings		Overall Effectiveness of Quizzes & Examinations	
	Fall (N= 8707)	Spring (N= 6610)	Fall (N= 10,438)	Spring (N= 8568)	Fall (N= 8447)	Spring (N= 6610)
Excellent	25%	26%	22%	13%	13%	26%
Good	44	44	43	34	32	44
Fair	23	20	27	32	32	20
Poor	6	7	6	14	15	7
Unacceptable	2	3	2	8	8	3

Table 6.19 (continued)

Distribution of Ratings for Selected Items From Student Course Evaluation, by Term

1971-72

FACULTY RESPONSES TO STUDENT PERFORMANCE

	Instructor's Responsiveness to Concerns and Questions		Helpfulness of Instructor's Comments in Response to Written Work	
Ratings	Fall (N= 8594)	Spring (N= 6351)	Fall (N= 7460)	Spring (N= 5525)
Excellent	42%	44%	19%	21%
Good	35	36	35	33
Fair	15	13	28	27
Poor	5	5	13	12
Unacceptable	3	2	6	7

Table 6.19 (continued)

Distribution of Ratings for Selected Items From Student Course Evaluation, by Term, 1971-72

CONDUCT OF CLASSROOM

	Degree to Which Lecture Clearly Presented Relevant Subject Matter		Degree to Which Lecture Stimulated Intellectual Curiosity		Precept/Class Instructor's Ability to Encourage Student Participation		Precept/Class Instructor's Ability to Help Clarify Readings and Lectures		Precept/Class Instructor's Ability to Raise Challenging Questions	
	Fall (N= 9189)	Spring (N= 7739)	Fall (N= 9109)	Spring (N= 7656)	Fall (N= 8421)	Spring (N= 6234)	Fall (N= 8489)	Spring (N= 6272)	Fall (N= 8308)	Spring (N= 6174)
Excellent	28%	30%	29%	30%	19%	21%	30%	33%	26%	28%
Good	36	38	32	35	30	32	36	38	35	36
Fair	24	21	25	22	31	29	22	19	26	25
Poor	9	8	11	9	14	12	9	6	9	7
Unacceptable	3	3	4	4	5	5	4	3	4	4

	Degree to Which Laboratory Contained Right Amount of Structure & Guidance by Instructor		Seminar Instructor's Ability to Encourage Student Participation		Overall Quality of Teaching		Course's Contribution to Capacity for Critical Evaluation of Subject Matter		Course's Contribution to Increased Interest in the Field		Integration of Various Parts of the Course	
	Fall (N= 2120)	Spring (N= 1790)	Fall (N= 916)	Spring (N= 760)	Fall (N= 10,893)	Spring (N= 8981)	Fall (N= 10,546)	Spring (N= 8705)	Fall (N= 10,774)	Spring (N= 8885)	Fall (N= 10,691)	Spring (N= 8814)
Excellent	18%	20%	30%	32%	28%	31%	19%	22%	27%	29%	23%	26%
Good	37	37	31	33	42	43	44	46	33	35	45	45
Fair	27	25	28	25	21	18	28	24	23	21	23	21
Poor	12	11	8	8	6	5	8	6	11	9	7	6
Unacceptable	6	7	3	2	8	2	2	2	5	5	2	2

Table 6.21

Student Evaluation of Quality of Teaching at Princeton
During Undergraduate Career, by Division,
Systematic Sample, Classes of 1972, 1973, and 1974*

Quality of Teaching	Total	Humanities	Social Sciences	Natural Sciences	Engineering
	(N=835)	(N=320)	(N=284)	(N=148)	(N=83)
Excellent	22%	24%	22%	18%	22%
Good	61	62	56	66	56
Fair	16	12	19	13	19
Poor	2	2	2	3	2
TOTAL	101%	100%	99%	100%	99%

* Source: Undergraduate Survey, Spring 1972. Sophomores assigned to division of major selected during Spring pre-registration period.

Table 6.20

Student Evaluation of Quality of Teaching at Princeton During Undergraduate Career, by Class, Systematic Sample, Classes of 1972, 1973, 1974, and 1975*

Quality of Teaching	Total	Freshman	Sophomore	Junior	Senior
	(N=1165)	(N=299)	(N=293)	(N=264)	(N=309)
Excellent	22%	23%	17%	20%	26%
Good	61	63	65	62	55
Fair	15	12	17	14	16
Poor	2	2	1	3	2
TOTAL	100%	100%	100%	99%	99%

* Source: Undergraduate Survey, Spring 1972.